

American FORESTS



JULY 1934

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Entered as second-class matter at the Post-Office at Washington, D. C., under the Act of March 3, 1879. Acceptable for mailing at special rate of postage provided in Section 1103, Act of October 3, 1917, authorized July 10, 1918. Additional Entry at Baltimore, Md., December 29, 1931.



AMERICAN FORESTS

VOLUME 40

JULY, 1934

NUMBER 7

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Member A. B. C.

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Published Monthly
by

THE AMERICAN FORESTRY
ASSOCIATION

1713 K STREET, N. W.
WASHINGTON, D. C.

35 CENTS A COPY

\$4.00 A YEAR



"Minor Glacier, in the Wind River mountains of Wyoming, at the top of the Continental Divide. In this mighty glacier, resting against the sky line, there arise the streams of the western slope of the Rockies, which will soon be halted in their course by the Hoover Dam, to be diverted and sent on their way again to irrigate millions of acres of land and to furnish the water and power supply for hundreds of thousands of persons. We sat motionless for a time, trying to comprehend the bigness and vastness of this top country."

TOP COUNTRY

By J. E. STIMSON

AS TOLD TO A. W. SPRING

Photographs by J. E. Stimson

"YOU'LL find 'er up the east prong of Middle Fork to the Green. Good luck," and with a wave of his hand, Doc Rickert started me off on a ten days pack trip in search of the Minor Glacier in the Wind River Mountains of Wyoming, from which rise the waters that are soon to be harnessed by the Hoover Dam, the largest structure of its kind in the world.

As Doc leaned against the doorjam of his cabin in the Little Boulder Basin, I knew that he must be thinking of the trails he had blazed all over western Wyoming when he was a pioneer in the Forest Service. He was the only man I knew who had ever climbed to that field of ice from which trickle the headwaters of the Green River.

Because of its remoteness and inaccessibility, few white men have seen the Minor Glacier, topping a bit of the high country in as primeval an area as one could find anywhere in the world. No guideposts or signboards point the way.

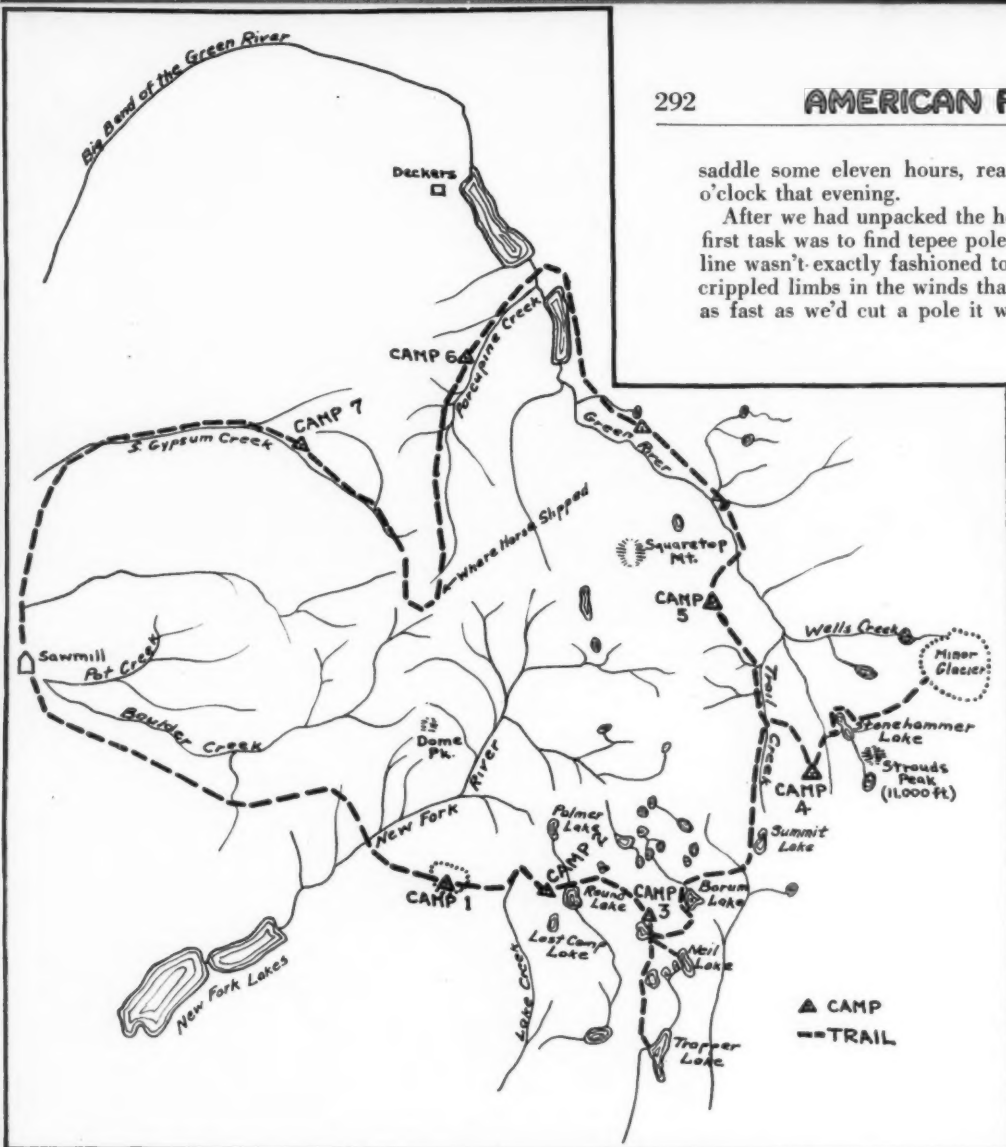
It is an untouched, rarely visited land of broken rock, ice and solitude.

In the lower country there are dim trails skirted by pines notched with the familiar blaze of the forest ranger's ax. Further up, in what is called the "high country," which varies in altitude from 10,000 to 12,000 feet, one has to pick his way around innumerable unnamed lakes and unexplored peaks, through twisted and gnarled juniper, over gigantic rock slides, into the barren windswept reaches of the Rocky Mountains to the very tip top of the backbone of the Continent.

With Doc Rickert's lumber partner, Lee Cooper, himself a former forest supervisor and a weathered westerner, and Mr. and Mrs. Mac Marshall, also from the sawmill, I hit the trail on the morning of the eighteenth of last August. Our outfit consisted of four saddle horses and three pack animals. The time of year had been selected as being the most



Nearing the end of our search for the glacier. This was our last camp, at 11,000 feet, before making the last stretch of the climb in this remote territory at the top of the world.



The trail we followed—much of which we blazed—on our ten day pack trip in search of Minor Glacier, lying in an untouched, rarely visited land of broken rock, ice and solitude.

propitious for photographing the top country since two consecutive dry seasons had melted the snows and the glacier, we hoped, would be well exposed. Never before had I found the high country in a friendlier, kindlier mood. It was just in the midst of the Alpine summer which lasts only from two to four weeks up there near timberline.

We left Boulder Basin about eight-thirty on the morning of the eighteenth and struck out for the headwaters of the New Fork River. Our trail led up and down through timbered country with now and then an occasional open park. Frequently we were compelled to stop to "blow" our horses, especially at the end of steep pitches. After we passed the source of the New Fork we headed for Mosquito Park, which is something more than 10,000 feet in altitude. This park, bordered by scrub pine, was boggy in the center and, according to Cooper, derives its name from the swarms of vicious mosquitoes there in season. Anyone who has ever made the acquaintance of these long-legged blood suckers of the high country will testify to their ferociousness. Fortunately, as we had planned, the "season" was over and we ate our first camp supper in peace. Although the length of our first day's trip was only fifteen miles, we were in the

saddle some eleven hours, reaching the park about eight o'clock that evening.

After we had unpacked the horses and hobbled them, our first task was to find tepee poles. The scrub stuff at timberline wasn't exactly fashioned to hold up anything except its crippled limbs in the winds that lash it relentlessly. About as fast as we'd cut a pole it would fall and break in two.

It was a job trying to find something long and strong enough to hold up our tepees. With the use of flashlights, we at last got poles cut and fixed by nine o'clock. They weren't much but they answered the purpose. There wasn't any arguing of politics or the depression that night. We didn't lose any time rolling into our beds. And those blankets and quilts, topped with an eider-down puff, surpassed any spring mattresses that I ever slept on when it came to producing sound sleep.

About seven o'clock the following morning we were again on the trail. Carefully we picked our way from Mosquito Park over broken rocks to the crest of Doubletop Mountain, where is located a government bench mark bearing the figures 10,867. We rode to the very tip of the mountain, from which there spread before us a magnificent panoramic view, stretching to the Salt River Range far to the west, to Fre-

mont Lake on the south and to the tributaries of the Green to the north. Our view to the east was blocked by nearby massive mountain ranges of the Continental Divide. We had climbed almost 3,000 feet since leaving the sawmill. From Doubletop we wound our way down through a deep canon to Round Lake, not very far distant, but sufficiently far to give a complete shift of scenery. There in a stretch of timber near an open park, which afforded plenty of feed for the horses, we made our second camp and prepared to spend the next day tramping and fishing.

Our third camp was only a short distance away at Heart Lake, where we stayed two nights. There in country that is tumbled up and down, with dense forests skirting innumerable lakes, we found the most marvelous fishing that I have ever experienced, and I've fished all over the country. Those lakes, stocked by the Forest Service some twenty years ago, are practically untouched. The fish averaged from fourteen to sixteen inches in length and weighed from two to three pounds. It is only within the past four or five years that people have realized that there were fish in these lakes, since the place can be reached only by a pack outfit. There are no trails there. In Lost Camp Lake we caught rainbow

trout; in Trail Lake, Loch Leven; in Neil Lake, rainbow; in Heart Lake, silver trout; and in Trapper Lake, the natives. Because of the very clear, cold water in those glacial basin lakes the fish are the most marvelously colored trout that I have ever seen.

In this fisherman's paradise some 10,500 feet above the sea, we lingered for two days. I walked and climbed and fished as much as possible in order to get hardened for the climbing which loomed ahead in the top country. Never was I so hungry nor did food taste better than that which Cooper and Mac prepared in our two Dutch ovens. The short cake, filled with luscious wild strawberries which we picked ourselves, beggars description! But the best of all was the chowder made according to Doc's recipe. First we dug a hole about two and one-half feet deep and thirty inches across and built a big timber fire in it. We let this burn for about two hours, replenishing it with fuel now and then. In the meantime we put bacon in the Dutch oven, then a layer of trout.

Since the fish were large, we cut them up and split them in two. Next we spread a layer of raw Irish potato cubed, and then a layer of sliced onion. On top of that we placed another layer of fish and repeated the layers in order until the vessel was filled. A small slice of salt pork was added. The whole was covered with water and placed over an open

fire and brought to a boil, then set off. As soon as the fire in the hole had become a mass of coals, Cooper and Mac shoveled the coals out, except a layer of about three inches. We then added a cup of cold water to the chowder to check a sudden boil, placed the lid on the Dutch oven, and lowered it upon the bed of coals. The remaining coals were banked on top and all around the oven, then were covered with dirt which was tramped down firmly. At the end of twenty-four hours the hole was opened with care to prevent the ashes from getting into the oven. When the lid to the Dutch oven was lifted we beheld a delicious concoction. I've never tasted anything quite equal to it. The coloring of the trout had been perfectly preserved and the bones had been cooked soft from the steady heat.

With reluctance we broke camp at Heart Lake and continued on towards Borum Lake on our way to intercept the Green River Pass trail. We passed by Summit Lake and



"We rode to the very tip of Doubletop Mountain, where a government bench mark bears the figure 10,867. A magnificent panoramic view spread before us, stretching to the Salt River Range far to the west, to Fremont Lake on the south, and to the tributaries of the Green to the north."

"Our third camp was in country that tumbled up and down, dense forests skirting the innumerable lakes where we found the most marvelous fishing. This is Trail Lake—a fisherman's paradise,—10,500 feet above the sea. Here we found Loch Leven, and here, too, is documentary evidence of the five-pounder caught by J. E. Stimson."



went over Green River pass, an open pass with high mountains on each side, one of them being Glover Peak, rising 11,500 feet. The way north down Trail Creek was almost perpendicular, with the going most difficult because of the steepness and the shifting gravel underfoot. Half way down to Three Forks we held our horses on a wooded slope while Cooper reconnoitered to see if it would be possible to follow the slope. He returned in about half an hour and said we'd tackle it. We fell in behind him and zig-zagged southeast up through rough territory to perhaps the highest camp ever made in that country. There at timberline, almost 11,000 feet high, we pitched our tepees and called the place "Glacier Camp."

There we intercepted a dim path which may have been a game trail or an old Indian trail. There were indications of a camp, probably a geological camp, having been made at that location a quarter of a century or so before. But it was quite evident that no one had visited the place in recent years. There was good grass for the horses and we were glad to turn them loose, as it had been a hard trip on both beast and man.

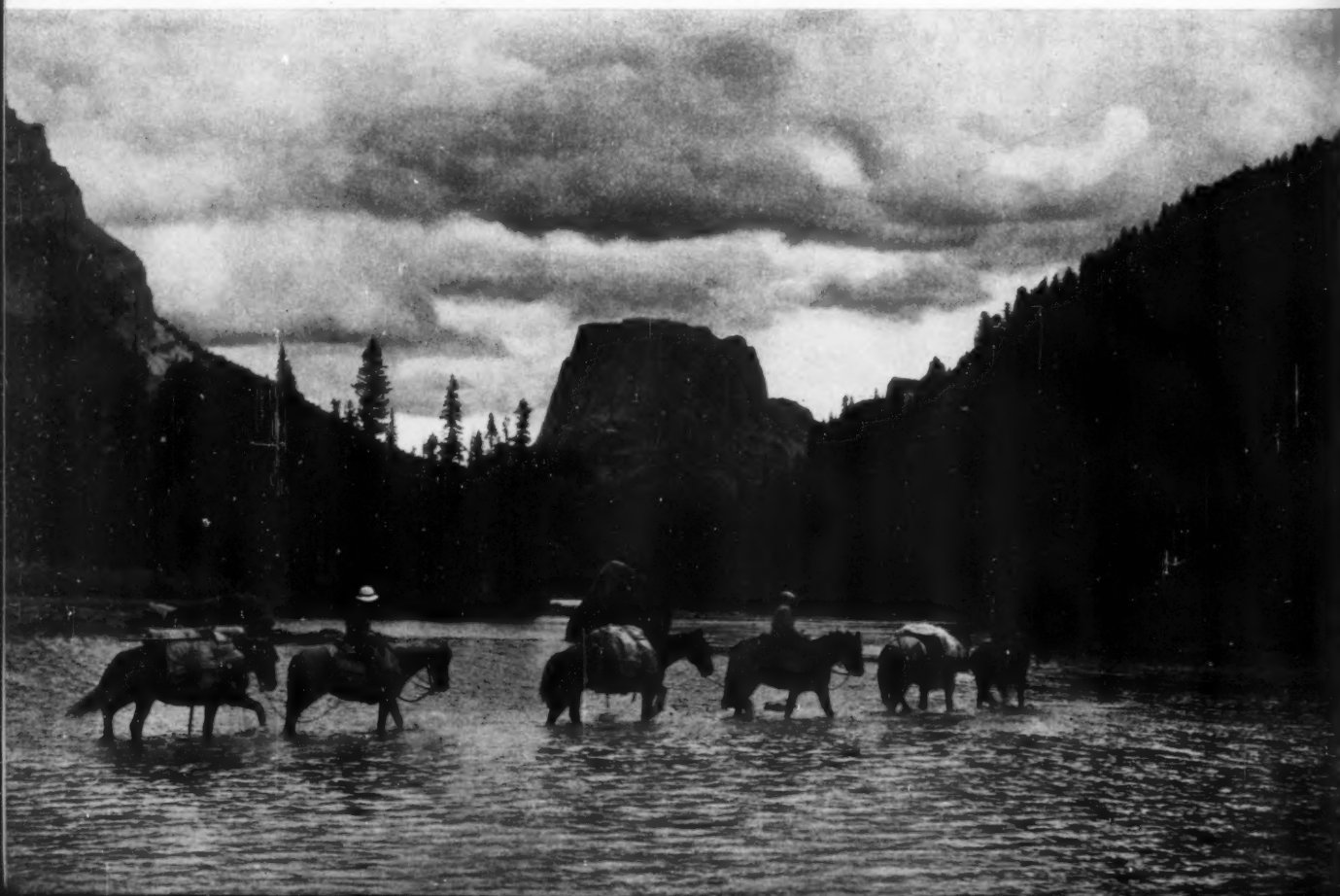
We were now in unnamed territory. Our geological survey map of the Fremont quadrangle, surveyed in 1906, indicated that the small lakes and the mountains for the most part in that vicinity had not been officially designated. Doc Rickert, while in the Forest Service, some years before, had seen the Minor Glacier but Cooper never had. As soon as we made camp at four o'clock in the afternoon, Cooper and Mac started out to explore. They reconnoitered for about three hours to make sure that we were in the locality from

which we could reach the glacier. That night at timberline we seemed to feel the nearness of the peaks more than ever before.

The next morning about seven o'clock, Cooper, Mac and I prepared to leave camp in search of the glacier. "If we don't show up tonight don't become alarmed," Mac said to his wife, as he turned the camp over to her. Laboriously we picked our way through broken country to a little lake which Cooper and Mac had visited the night before. On its shore I discovered a stone hammer about twelve inches long, evidently made by Indians. Straightway we named this picturesque little body of water "Stonehammer Lake." Its outlet is undoubtedly the source of the Middle Fork of the Green. At the head of the lake is Stroud's Peak.

We made our way around to the north end of the lake and found a most magnificent view of Stroud's Peak, towering 11,000 feet high to the southeast. Further on, step by step, up over huge boulders we followed a water course to the northeast which we decided was the east prong of Middle Fork to the Green. Hour after hour we toiled over this terrain in a huge glacial basin; skirted the edge of a little meadow, which afforded good feed for elk; followed a beautiful little stream that gurgled through the lichen covered rocks; and then we crossed a grassy slope which was nothing but soil drifted in on solid rock in which grass had taken root. On and on we worked our way, carving our footholds, pulling ourselves over jagged rocks, up through another basin, around a little snow bank and then up a rock slide towards the saddle which we had set as our objective. What would we find beyond? Would we see the glacier or

"Continuing on our way around Upper Green River Lake we crossed between the two lakes. Old Square Top, rising 11,679 feet—higher than El Capitan in California—made a most picturesque background to our crossing."





"Higher and higher we had struggled—the hardest climbing I had ever done—and then, there was the terminal moraine looming before us, and a mass of solid ice! A beautiful little lake lay under the tongue of the glacier and further to the northwest, another of brilliant emerald green. Cooper, figuring out the amount of shrinkage to the glacier, estimated it to be seventy-five feet in twenty-six years."

would there be just another ridge of rock-strewn peaks? This was the hardest climbing that I had ever done. Because of the altitude we could make only a few feet at a time without having to stop for breath and to rest. Higher and higher we struggled. At last, exhausted, we reached the saddle almost afraid to look beyond. And then—there was the terminal moraine looming in front of us, and a mass of solid ice. The continual erosion above the glacier gave the ice face a dusty look and now and then green streaks indicated where the crevasses were.

In this mighty Minor Glacier, resting against the sky line there arise the streams of the western slope of the Rocky Mountains, which will soon be halted in their course by the Hoover Dam, to be diverted through tunnels and headgates and sent on their way again to irrigate millions of acres of land and to furnish the water and power supply for hundreds of thousands of persons. Because just a short time ago, at the request of the United States Reclamation Service, I had photographed various government projects in Idaho, Montana, Oregon, Utah, Nevada and California, including the Black Canon where the Hoover Dam is being built, I could grasp in some measure the tremendous importance of this water source.

While I took pictures from the saddle, Cooper figured out the amount of shrinkage of the glacier from the time the map had been made. According to his estimates the glacier has shrunk about seventy-five feet in twenty-six

years. The moraine, consisting of the rocks and debris thrown up by the movement of the ice at the glacier's edge, is, I should judge, seventy-five feet high. A beautiful little lake lay under the tongue of the glacier, looking quite similar to pea soup from the glacial deposit. A second lake, which I estimated was about 12,000 feet in altitude, was of a peagreen shade. Further away to the northwest was a lake of brilliant emerald green.

Although the shrinkage in the glacier has been considerable during the past few years, old timers say that as soon as there is a heavy snowfall again it will start to form ice and the glacier will once more push out the moraine. The past two summers have broken all records for dryness and have been exceedingly hot, therefore the high country was practically devoid of snow.

The largest glaciers in this section of the Continental Divide drain to the east, Gannett Peak on that slope being the highest peak in Wyoming, exceeding the Grand Teton by a few feet. Some time before I had ridden up Horse Ridge from Crowheart Butte on the eastern slope of the Continental Divide and had followed the ridge to 12,000 feet with pack horses. From there I could look across the glaciers on Gannett Peak, Mount Warren and Mount Helen. Although at the time I had been awed by the grandeur of the scenery, I did not experience the thrill which the nearness to this Minor Glacier on the western slope gave me. After I had (Continuing on page 335)

INDIAN TRAIL TREES

By
RAYMOND E. JANSSEN

Figure 1—An Indian trail tree monument, placed by the Daughters of the American Revolution, at Evanston, Illinois, is inscribed: "This Red Oak Was a Pottawatomie Trail Tree Which Grew on Green Bay Trail Immediately West of Calvary Station Where It Pointed to a Large Indian Village Located on and East of the Site of Bowmanville."

EVER since the beginning of human existence trees have played an important role in the growing culture of man. Primitive man used them in various ways as means of providing him not only with food, but also with shelter, protection and warmth. As man grew in intelligence, he found that trees could further be used as reliable landmarks, and as such they provided him with another useful instrument. He learned that by using them as guideposts he could travel from place to place without fear of becoming lost. He could also use them as means of indicating to other fellow men the locations of desirable routes of travel. This led to the development of a system whereby certain trees could be identified as definite trail markers. Primitive man noticed that trees do not heighten *en masse*, but that they grow from their tips. He

also observed that they do not turn on an axis while growing, but that once established they maintain a constant fixed position. Experiment showed him that if a young tree were bent in some unnatural position without being broken, and were

fastened securely, it would continue to grow, forever after maintaining the bent position. With this as a means, it was possible to deform trees deliberately so that they could easily be distinguished from the other trees of the forest. There developed a custom of marking trails through the forests by bending saplings and securing them in such positions that their directions of bend indicated the directions of the routes to be followed. A line of several similarly bent trees thus established a continuous uninterrupted route of travel which could readily be followed. After being bent, the young trees were fastened by one of several methods. Sometimes the trees were weighted down with a rock, sometimes a pile of dirt was used, and often the tree was tied in position with a length of rawhide, a strip of bark, or a tough vine. The various methods used in each case were dependent

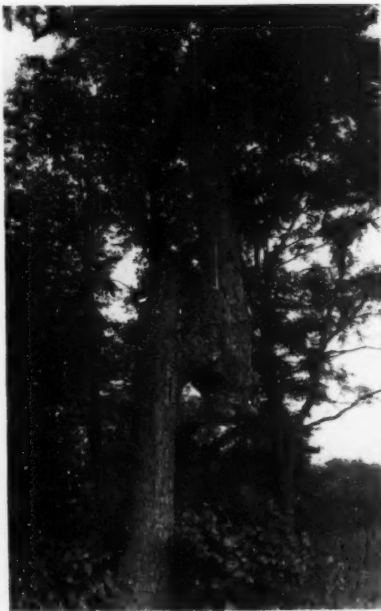


Figure 2—This white oak was bent quite high from the ground, and marks the intersection of two former Indian trails. Other bent trees along these trails are still standing at various distances in the four directions from it. It is located in Highland Park, Illinois.



Figure 3—This burr oak is typical of the way in which the extremities of the original bent trunks usually decay away after the new secondary trunks are established. The size of the knob indicates, however, that the original trunk persisted for many years before decaying. This tree is in Lake Forest, Illinois.

AMERICAN FORESTS

largely upon the custom and ingenuity of the individual performing the work and the materials at hand.

When America was introduced to the rest of the civilized world, this method of marking trails was in use by tribes of Indians inhabiting the forested regions in the eastern part of what was later to become the United States. Only a hundred years ago the last of this territory east of the Mississippi River was formally decided by them to the United States. (Treaty of Chicago, September 26, 1333.) This precipitated the removal of the Indians to reservations, leaving the territory to the exclusive control of the white man. In passing, the Red Man left behind him his forest trails marked by numerous curiously bent trail trees.

In marking a trail, after bending and fastening the young trees, the Indian would usually carve upon them his individual or clan insignia. Not every tree along the route of travel was bent, it being advisable to do so only at intervals. Natives were thus able to follow a pre-established trail by continuing in the direction indicated from one bent tree to the next. If the trail crossed a non-wooded area, some other system of marking had to be resorted to, such as the placing of stone piles, planting of poles, or the appropriate use of other materials. The use of living trees was, of course, the most permanent, and therefore the most desirable method. Because of their longevity, many of these old Indian trail trees, now gnarled with age, may be seen standing in various parts of the country, still marking the sites of former trails. Such a tree, which was standing in Evanston, Illinois, a few years ago had to be removed to make way for a real estate improvement. It was relocated a short distance away and converted into a sort of monument (see figure 1). Sheridan Road, where this tree now stands, was laid out along the route of a former Indian trail paralleling Lake Michigan. A network of several intersecting trails was recently worked out from trail trees still standing in



Figure 4—Occasionally trail trees took root at their points of secondary contact with the ground, and thereafter continued growing with two sets of roots. This is a white oak, and is located at Highland Park, Illinois.

alignment and extending through the towns of Highland Park, Highwood and Lake Forest in Illinois, a few miles north of Chicago. In a combined distance of approximately ten miles there are fourteen of these trees still growing. Some of them are as close together as five hundred to a thousand feet, while others are more than a mile apart. Modern civic development takes its toll of these trees from time to time, and the gaps between them are becoming wider and wider. One of these trees, bent quite high from the ground, marks the intersection of two trails (see figure 2). Evidence indicates that these particular trails

extended between Indian villages which formerly occupied sites situated near Lake Michigan and along the banks of the Skokie River a few miles to the west.

The bending and fastening of trees as trail markers had a definite effect upon the subsequent development of the trees. They were severely stunted, but nevertheless continued to grow. The original trunk of a tree having been bent down to the ground necessitated the establishment of one or more secondary trunks to take the place of the original one.

(Continuing on page 334)



Figure 5—When the trail was marked, the trunk of this burr oak was too large to be bent, and so the lowermost branch was bent instead. Note the angle of the secondary branches. It is also located at Highland Park, Illinois.



Figure 6—Although most Indian trail trees are oaks, various other kinds of trees were also used. This is a hard maple of historic significance which stands above the flood plain of the Chicago River at Deerfield, Illinois.



Devastation—this is the site of the wide-spreading, fertile lands where Tom Hamer, the pioneer, settled with his family and slaves and which, for years, yielded rich and abundant harvests. Now, torn and eroded, it is known as the "valley of lost hope."

THE VALLEY OF LOST HOPE

By B. W. JONES

"**W**HOA!" gently spoke young Tom Hamer to the beautiful roan mare which had brought him all the way from North Carolina. The well-trained horse quickly obeyed, and raising her head gazed intently at a six-point buck which had stopped several yards ahead. The deer stamped his feet in protest at the intruder and silently slipped into the forest.

It was a beautiful morning in May, 1837, and Tom Hamer paid not the least bit of attention to the deer, for the place where he stood was the spot for which he had been searching since leaving his home in North Carolina many weeks before. It was an ideal site on which to build a home for a young wife and children anxiously awaiting his return; offering all that could be asked in the way of natural resources of virgin timber, fertile soils and an abundance of wild game native to the section; a spot to gladden the heart of the pioneer and quicken the pulse of the imaginative.

To the east and west as far as the eye could see lay fertile soil, yet untouched by human hands; sloping gently away from the prominent knoll where young Hamer sat his horse, now a gentle rise to form a ridge, again a little dip, each succeeding the other much like the waves in a grain field when a light breeze blows, and all covered with a heavy growth of pine and mixed hardwoods. To the north the land dropped rapidly away to the valley of Wolf River, while to the south, a few hundred yards, lay one of the most beautiful and richest valleys to be found in all the section. Giant oaks, hickories, and chestnuts reared their proud heads to the heavens and the rich mellow loam soil waited only the touch of the hand of the tiller to yield a bountiful harvest for man and beast. Here and there numerous springs of clear, cold water bubbled in their glee, and joining the waters from others like themselves began the long journey to the sea via Snow Creek, Tippo-

Tallahatchie and Mississippi Rivers. It was indeed an inspiring sight to a weary traveler and after gazing long and intently at what he saw about him Tom Hamer slowly stroked the mare's neck and said, "Well, old girl, this is the place. Our journey is ended."

Late summer the same year Tom Hamer halted his tired horse at the exact spot where his first journey ended, but this time he was not alone. In a covered wagon just behind him sat a comely young woman with a sleeping baby in her arms. Another child played with a negro slave boy in the wagon behind which were others, accompanied by livestock of various kinds, and all driven by negro slaves, the property of young Hamer. The command to halt was greeted with a cheer from the slaves and the tired animals



A large part still stands of the two-story house Tom Hamer built for his young wife nearly a hundred years ago—every board, every joining, laboriously hand hewn from trees on the land.

heaved a sigh of relief, for the going had been hard during the six weeks they had been on their way from their Carolina home; and especially since crossing the Tennessee River at about where Wilson Dam is now located.

Soon the sound of the ax and adz could be heard echoing from hill to hill as trees were cut, shaped and placed in building the home for the family and quarters for the slaves. The house for the family was a large double - pen structure built of logs and chinked with clay. The roof was made of boards riven from trees on the

farm and the floor boards were hewn and planed by hand.

Here the family lived and grew till the year 1841 when the permanent home was built. Two other children had been added to the family and in the course of time two more came along to bless the happy home, making six in all—four boys and two girls, necessitating a larger house. A large part of the two-story house built nearly a hundred years ago still stands on a commanding knoll overlooking the Wolf and Tippecanoe-Tallahatchie river watersheds, and is indeed a monument to the skill and untiring effort of the master and negro slaves who worked so faithfully at the task.

There were seven rooms in all, four down stairs and three above, and the framework from cellar to attic, laboriously hewn from trees on the farm, was joined together by means of mortis, tenons and wooden pegs driven into auger holes. All the flooring, ceiling, door and window casings and the stairways were hand planed and held in place with square iron nails. The carving and artistic wood work on the stairway and about the mantels attest to the skill of the workmen of that day. Three large brick chimneys were built of brick burnt right on the place and in addition to the indispensable pot hooks and crane the family boasted its own candle mould from which candles were moulded of tallow produced on the farm. In addition, an old-fashioned long-handle waffle iron was often brought into play, and golden-brown waffles were served with butter and syrup or honey.

The slave quarters were constructed a few hundred yards away, and between the quarters and the master's home an attempt was made to dig a well to provide water for the family. The well was never finished for when only about twelve feet deep the digger struck a stream of cold, clear water which rose to fill the hole and flow out the top. Thus the well became a spring.

Near the old house can still be seen the ruins of a very unusual structure for this section—an ice house. Yes, an ice house was built of native rock, and ice obtained in the winter by freezing water placed in tubs was stored for summer use.

Everyone worked hard, and like Job of old, Tom Hamer waxed rich, powerful and influential in the land of his adoption. The forest had gradually given way to the onslaught of the ax and in its stead fertile fields yielded their abundant harvests. The uplands were planted to cotton,



Reconstruction—here C.C.C. boys are constructing brush dams in the great gully on the old Hamer estate, as the first step in healing the surface to check further soil wastage. The great gully has been called "The Grand Canyon of Mississippi."

and the plantation, which had now grown to some twenty-five hundred acres, boasted three horsepower gins. Commercial fertilizers were unknown and much of the land yielded a bale of cotton an acre year after year. The cotton was ginned on the plantation, hauled to Memphis and shipped down the Mississippi River to New Orleans for sale. The beautiful valley, which had so attracted Tom Hamer's attention on his first visit, was planted to corn and so great were the yields that three large barns were necessary. One was filled with the corn for use on the farm and the other two held the corn for sale. So widespread became the knowledge that Tom Hamer was an excellent farmer and possessed a wonderful plantation that people for miles around came to his place for their bread. When met on the road and asked whither bound they would reply, "To Egypt to buy corn."

A mile and a half to the southeast, the old town of Salem had sprung up around the shop of an old Indian silversmith, who obtained the silver from some unknown source and sold the trinkets to the settlers whose numbers had increased rapidly. Old Salem was not only the trade center for a vast section of north central Mississippi and southern Tennessee, but it was also an educational center of some note, boasting both a male and a female college as well as a public school system. Here the Hamer children were taught the three R's in the public schools and later attended the colleges. Peace, prosperity and happiness reigned and the family remained unbroken till the early fifties, when Tom Hamer, Jr., married a beautiful Tennessee girl and erected himself a large brick home a mile east of the old homestead.

The Civil War broke like a storm over the southland and two of the younger boys marched away to join the forces of Lee and Jackson. Tom, Sr., was too old to take an active part in the struggle, but he was an ardent supporter of the "Lost Cause," and was the leader in organizing a Home Company of the older men of the section. When the war came to a close, the Hamers, like many other southerners, found themselves in dire straits, their credit gone, markets destroyed and slaves free. Too indolent to work or waiting for the promised "Forty Acres and a Mule," the negroes refused to work the old plantation longer and Tom, Jr., who had assumed control since his father

had become too old to manage it, was forced to work the entire place for several years with the aid of the members of the family and the help of two negro women.

The wounds left by the Civil War were gradually healed and the old plantation was restored to most of its former

wholly destroyed. The rains came and soon small washes began to appear about the farm, growing larger and larger each passing year through the action of water and frost. This process gradually destroyed outright a large part of the valuable farm land and cut the remainder up into small irregular plats, rendering it unfit or unprofitable to till. Not only were the fields on the upland ruined through erosion, but the rich bottom lands were covered with deposits of sand washed from the gullies above.

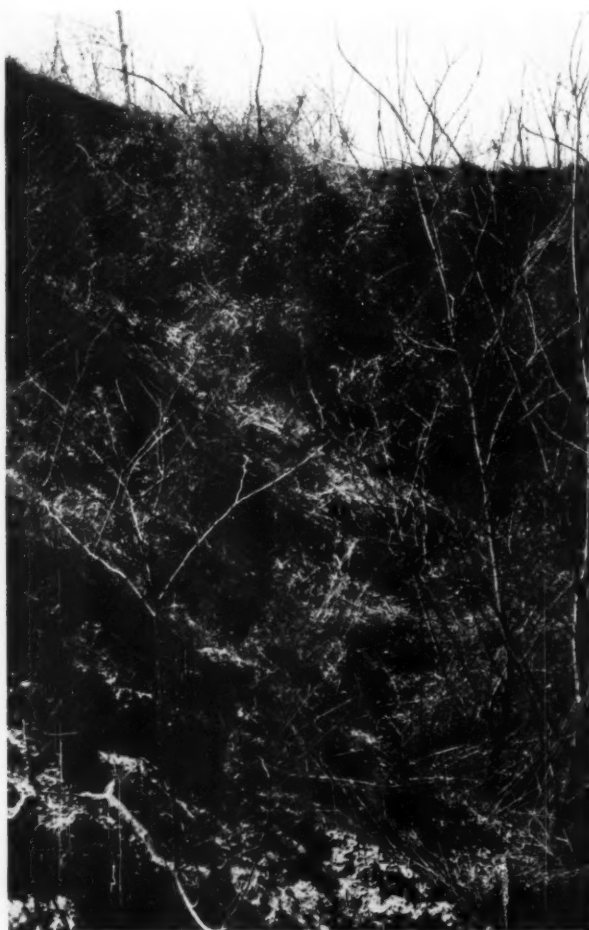
The old plantation had been broken up into small farms and divided among the various children. They worked hard and tried vainly to halt the steady march of the gullies, but year after year more ground was lost to the foe and soon after the turn of the new century the grandchild-



One fork of the valley of lost hope, which altogether is 3,000 feet long, 76 feet deep and 276 feet wide. A total of 12,000,000 cubic feet of material has been eroded by water, frost and wind and spread over the rich valley bottomlands.

prestige by the early seventies. Tom Hamer, Sr., the founder, passed to his reward in 1875 and Tom, Jr., came into full control and possession of the place. He prospered, and his home was blessed with ten children, five of whom are living today. The new peace, the new happiness, the new prosperity was enjoyed for more than twenty years. In 1897 Tom Hamer, Jr., died and was laid to rest beside his father. In passing he left to his children the plantation, and no doubt died in the belief that he was bequeathing to them a rich heritage. But whether he knew it or not his sons and daughters inherited a plantation that had already begun to decay; a problem which was to prove in less than a generation more subtle, more insidious and more relentless than any foe yet encountered.

Much of the timber had been cut from the land and through the annual application of fire to the woods the natural covering of the soil had been either partially or



The head of one prong of the gully completely healed by black locust trees and honeysuckle vines. Started by the farm owner along the gully rim, they have grown down the slopes and the C.C.C. boys are using the same sort of material in their work of healing this enormous wound in the earth.

dren of the man who less than a hundred years before had won peace and happiness from a bounteous nature, began leaving the old homestead to the soil-destroying elements and to the descendants of their old negro slaves, to seek homes elsewhere. Thus the state lost men who planned to follow in the footsteps of (Continuing on page 318)

Federal Acquisition in the New Deal for Forestry

By WILLIAM B. GREELEY

MORE than ever in these days do we apply the test of cold reality to any economic or social problem. Less than ever do we pay homage to theory or seek to interpret actual conditions so as to fit its classical dictates.

It is this sort of inquiry that I wish to turn upon the problem of forest land ownership in the western states; and particularly upon the part in such ownership that should be assumed by the national government.

Directly after the World War there occurred a revived concern for the future of the seventy-five-odd per cent of forest lands in the United States which were in private or commercial ownership. The Capper Report, one of the now famous series of Forest Service reviews, appeared. Many proposals were made. One school demanded federal regulation of private forests. Another school upheld the legal claims and other merits of state regulation. An earnest congressional inquiry dealt with the problem comprehensively. The direct result, some ten years ago, was the policy of federal cooperation with states and private forest owners in fire prevention, together with an exhaustive federal study of forest taxes—both provided under the Clarke-McNary Act.

The theory of this federal program was that if the private owners of forest land—by and large—were assured reasonable security from fire loss and reasonable taxes adapted to the time requirements of forest crops, the greater bulk of our forest lands could remain in private ownership and still be kept in or brought into a degree of productiveness sufficient to maintain their economic usefulness.

At that time, from thirty to forty per cent of the timber lands in the western states were in the National Forests. Many of us thought that, aside from consolidations and boundary adjustments which could be accomplished under the exchange laws, the National Forest lay-out in the West had been completed. We doubted the practical wisdom or necessity of taking more land off of county tax rolls or out of the hands of private industry. There appeared to be neither political opportunity nor economic need for extending to the western states the program of forest acquisition by purchase which had been well launched in the East, primarily for the protection of watersheds. We anticipated a growing demand for western timber; well sustained or increasing stumpage values; the gradual emergence of private forest management, permanently rooted in the land, out of the liquidation of virgin timber—then the obvious motive power in western forest enterprise.

On June 1 the lumber industry entered upon a program of woods practices designed to leave its lands in good tree growing condition. What is ahead for these lands and their owners in the way of industrial recovery and permanent forest management? Solution of the problem of land ownership, now drifting into chaos, the author holds, will be a determining factor. It calls for a bold and intelligent policy of federal and state acquisition of forest lands.

Col. Greeley was formerly Chief Forester of the United States. For the past six years he has been Manager of the West Coast Lumberman's Association. He therefore writes from broad experience and intimate knowledge of both public and industrial interests. His article is the fourth of a series written by different authorities dealing with important aspects of the new forest program. In an early issue, David T. Mason, Executive Officer of the Lumber Code Authority, will discuss the meaning and application of sustained yield management in relation to a national program of forest and industry restoration.—EDITOR

The cooperative forest policy written into the Clarke-McNary Act has brought much in practical results. But we must admit that most of our visions of commercial forestry following in the train of this beneficent federal program have proven to be will-o'-the-wisps. The stark truth is that at no time since western forestry received serious consideration has forest ownership in the West been so chaotic or its future so uncertain as at the present time. This is far from being simply a phase of the general depression, although the depression has sharply accentuated forces long at work. It is the net result of many different factors,—the changes in building and consuming practices of the

country reflected in an unbroken decline in per capita use of lumber for some twenty years; stagnant or declining timber values; the realization that the private holdings of the West include large areas of marginal or sub-marginal timber lands which have no present value for conversion; and the difficulty of relieving or adjusting the annual tax burden on timber which has produced no revenues since its appropriation from the public domain and has no prospect of revenue for many years still to come.

Under these conditions and in the face of a shrinking market, the pressure to liquidate investment, to cut out and be done with it, instead of being geared down into a more orderly process of conversion, has been speeded up. The cash investment in private timber holdings in the Douglas fir region of western Oregon and Washington is not far from \$500,000,000. The realization, or even partial realization, upon this investment through the manufacture and sale of lumber extends into the future for from thirty to eighty years, depending upon which annual rate of utilization out of the last dozen years is taken as a divisor.

That is to say, instead of progressing in the past decade toward permanency in western forest land ownership, there has been an increasing drift in the opposite direction. In the most recent years, under the acute losses of the depression, this drift has headed toward chaos in private ownership. The problem of forest-land tax delinquency, both of timbered areas and cut-overs, is becoming more critical and widespread. Most forest owners today face so many immediate financial burdens and so many future uncertainties, that their possibilities for engaging in long-time timber cropping or sustained yield enterprises are extremely remote.

At this stage, entered the New Deal for Forestry, that is, the NRA Forest Industry Codes. As far as the lumber industry of the Pacific Northwest is concerned, nine months

under its Code have brought two measurable results:

First, a real start toward stability and financial rehabilitation, due to the provisions for control of production and cost protection.

Second, a revival of the earlier promise that the industry may yet progress from timber mining toward timber cropping.

These two changes for the better are linked together. While this article is concerned chiefly with forestry, it must not be lost sight of that no real progress in commercial forestry is possible except as part of an industrial recovery, whose foundation is fair realization in the conduct of business. Men do not conserve that which has no value. Men can not be sincerely concerned with producing and owning new forests when the chief worry of their business hours is to get rid of the forests they already have.

It is of interest to compare the control of private logging under the Lumber Code with the similar control sought fifteen-odd years ago by direct federal regulation or under the police powers of the state. The earlier plan was to enforce regulation of forest-using industry by outside authority and police power. The present plan is one of self-regulation. It is simply one phase of an industry governing and directing itself in all-round progress toward better conditions. That is, good forest practice is in harness with fair wages, reduced working hours, production adjusted to demand and prices that protect production costs—all as correlated parts in a scheme of industrial self-government.

There are two fairly distinct forestry provisions in the Lumber Code. The first is a specific requirement for leaving the lumberman's cuttings in good condition for regrowth through fire prevention, through selective logging, seed trees or whatever methods are best adapted to a particular area. This is specific and definite. It is a matter of good workmanship on the immediate job. It is something lumbermen can do; and, I believe, will do with reasonable public cooperation in controlling fire hazards and the like.

The second phase is that of heading the industry toward sustained yield in the management of its lands. This is a much larger problem and involves factors which lumbermen can not control. As to this feature of the Code, the lumbermen could not conscientiously undertake more than assures their sincere study of possibilities. We must frankly admit that sustained yield in the commercial forestry of the West still remains largely the "substance of things hoped for."

As far as the Pacific Northwest is concerned, this caution toward specific commitment in respect to putting forest properties on a basis of sustained yield was the only honest attitude lumbermen could take. They do not know what they can do. The practical factors they must deal with in timber values, in timber taxes and in the hazards of long-time investment are so beclouded with uncertainty the situation of private forest ownership in this region is still so unstable, that only in rare individual cases can a forest owner today look beyond the immediate problem of working out from under his load of virgin timber.

Here I come to the main point of this discussion. Let us assume that lumbermen make good on the immediate job of leaving their cut-overs in satisfactory growing condition. What is ahead of these lands from then on?

It is upon this very matter of permanent forest management and planned timber cropping that our ultimate progress in commercial forestry depends. And it is here particularly that the importance of the national forestry program, especially national acquisition of forest lands, comes

into play. How can permanent advantage be taken of the beneficial forest practices established under the Lumber Code? How can our immediate effort to cut our woods with good forest craftsmanship be built into an effective national program for sustained yield?

Scarcely any other kind of business enterprise involves such long-time calculations of costs and returns as timber growing. Owners must figure in cycles of from thirty to seventy-five years. That is not possible without some reasonably assured base, or minimum, for setting up costs, hazards and realization. It is not generally possible in the western states today because of the chaotic condition of forest land values, with a surplusage of old growth timber capable of economic conversion and a further surplusage of marginal and sub-marginal timber—all under years of accumulated pressure for liquidation. To get sustained yield into the commercial forestry of the West, we must establish a foundation of far greater stability in timber values than now exists. Here is where the Forest Industry Codes and the federal program of forest acquisition should join forces.

After the very comprehensive study embodied in the Cope-land Report, the United States Forest Service has proposed the purchase of some 224 million acres of National Forests in addition to those now owned by the federal government. Without presuming to deal with the phases of this undertaking which are concerned with the conservation of water or control of soil erosion, I wish to point out how this program of federal acquisition can supplement and extend the NRA Forestry Codes. Three specific suggestions are offered.

The first has to do with the large areas of marginal or sub-marginal forest land in practically every western state, which has little or no present commercial value. Considerable areas of such land and timber are now in process of being dropped upon the public door-step through tax delinquency. The forest protection maps of the West are carrying spots of "No Man's" land which are not meeting the legal requirements for fire prevention in their State. Already the enlargement of such areas of "No Man's" land threatens, in some localities, the breaking down of the co-operative system of fire protection which has been painstakingly built up in the West during the past thirty years.

The greater part of this marginal land is earmarked for public ownership of some form—sooner or later. Individuals or companies will not carry it. One of the main points in the federal acquisition program should be to work out a cooperative plan with each of the western states under which some form of public ownership and custody may promptly be provided for the forest areas which are drifting through this process of reversion. It would seem desirable that the states, or their counties, be encouraged to assume the administration and protection of such areas under some permanent form of public holding, to the extent they are able to do so. In locations where the problem exceeds the capacity of the state or where protection and administration can be afforded most economically by existing National Forests, there should be a specific plan for the cession of the land to the federal government.

My second suggestion is that the federal government should boldly stabilize, or control, the value of western timber, in some such way as it has dealt with the value of gold, by acquiring and incorporating into the sustained yield regime of the National Forests enough timber to free the market from the unsound and destructive pressure for hasty liquidation.

A serious mistake was made when the government let so much of its timber go in our (Continuing on page 334)

HEROES OF THE C.C.C.

Seventy-Seven Enrolled Members
of the Civilian Conservation Corps
are Cited For Courageous and
Meritorious Service

By
ERLE KAUFFMAN



Charles C. Haines ran three miles in his stocking feet to save the life of a comrade.



Frank S. Zabroski saved the lives of his officers trapped in a burning building.

IT WAS hot in Frijoles Canyon. A New Mexico sun beat down on the white flames that enveloped whole trees, that raced through the tangled underbrush like unleashed monsters. The famous cliff dwelling ruins of

and, in the case of Martinez, dared death like men.

Martinez, a Spanish American from the upper Rio Grande Valley of New Mexico, and his crew were members of Civilian Conservation Corps Company 815,

stationed at Santa Fe. They had been dispatched to Frijoles Canyon in response to an emergency call from the Monument headquarters, and for three blistering, agonizing hours had matched their efforts against the wind-driven fire.

Their courage and resourcefulness won for them—almost.

Bandelier National Monument lay buried in smoke; the towering buildings of Santa Fe, hardly more than forty miles away, scraped the murky haze.

On the west slope of the canyon a little company of fourteen men toiled and sweated like grim warriors at the gates of doom. The crashing of flame-ridden trees, the roar of the fire intermingled with the scraping of mattocks and shovels in the gravelly soil or the sharp impact of axes as they bit into wood. But only occasionally was a human voice heard, only when Santos Martinez shouted an order.

There was something extremely youthful in the voice of Martinez and in the smoke-grimed bodies of the crew that toiled about him—youth that marked them members of the Civilian Conservation Corps. But it seemed to make little difference in the way they conducted themselves in the face of the fiery blast. They thought like men, worked like men,

The fire was stopped, but they had to give up Santos Martinez.

It happened an hour before dusk. The flames had died down to smoldering sparks and the heavy cloud blanket had lifted. Martinez allowed them to rest for a moment on their mattocks and shovels—but only for a moment. Scattered throughout the canyon were great tombstones of trees, still smoldering, still standing erect. Martinez knew the menace in their black forms. Those smoldering sparks could be quickly fanned into another inferno.

They must come down! So he directed his men to the task. He filled them with the thought of caution, for any



Max Moneith (left), Clinton Mastin (center) and George Mayland (right) rescued Robert Pope (upper left), Miss Neva Pope (upper center) and Miss Luella Pope (upper right) from the swift current of the Boise River in Idaho.

moment and without warning they may come crashing down, raining death from above. And as he labored with ax and shovel, felling trees and burying the charred logs with dirt, he became more absorbed in their safety. His eyes and mind were on them—not above.

It is doubtful if he heard the tree fall. No one else did until it had shattered his young body. It was a large dead tree, at least three feet in diameter, and he was directly under it.

Santos was killed. But he went down with his face turned toward his companions, his fellow C.C.C. workers, so that he could warn them of any smouldering danger that came crashing down from the sky.

On May 28 Santos Martinez was cited by Robert Fechner, Director of Emergency Conservation Work, for courageous and meritorious service in the Civilian Conservation Corps, and the citation was delivered to his parents. At the same time citations were sent to seventy-six other enrolled members of the Corps whose unselfish acts have made them true heroes in their country's service. All of the men receiving commendation were recommended by the War Department and approved by Mr. Fechner.

Shortly after Santos Martinez's crushed body was lifted tenderly from beneath the smouldering tree in New Mexico, George Funk, who enrolled in Brooklyn, New York, made "valiant efforts to save the lives of two companions lost in the mountains," to quote his citation. While it was a burning tree that cost the life of the young Spanish American, it was cold rain and sleet that claimed Funk's companions. Singularly enough, Funk and his companions were also on fire duty; but there is a long span between New Mexico and Montana.

It was late in August when Funk, attached to Company 1247, at Basin, Montana, accompanied Lieutenant Robert S. Gilmore and Harry Halverson, a Montana woodsman, on a camp inspection trip high up in the Belt Mountains, near Cascade. The fire had been burning for three days and so rugged was the wilderness in which it was confined that a series of small fire camps were scattered around it. It was an attempt to reach these isolated camps, to look out for the safety and welfare of the C.C.C. firefighters when an unexpected storm struck, that took the lives of Funk's associates and lifted him to the ranks of one of the cited heroes of the Corps.

Leaving the main camp in the early afternoon the three men successfully traversed the hazardous trail to fire camps No. 1 and No. 2. At the latter they were urged to remain for the night for the storm was increasing in intensity—and it was growing colder. But they moved on. Camp No. 3 occupied an exposed position. The boys there probably needed help.

Funk alone reached this camp—but not until three days later. He left Halverson dead beneath a tree. The lifeless body of Lieutenant Gilmore he carefully covered and left in a cave high up on a cliff. But he left them only after he had valiantly struggled to keep them alive, to bring them safely through.

After leaving Camp No. 2, the trio ran into a severe rain storm, and after a futile effort to follow the trail they were forced to bivouac in the open for the night. The next morning they willingly and courageously continued the journey, despite fatigue, exposure and lack of food. Halverson was the first to weaken, to drop from exhaustion. Lieutenant Gilmore managed to last to the foot of a rocky cliff. Despite his nerve-racking experience, his fatigue and exhaustion, the boy who was reared in Brooklyn carried the dying officer to a nearby cave, to protect him from the still raging elements. Throughout the night he watched over him, attempted to keep him warm, sought vainly to rally his lowering vitality. But when cold morning broke, he looked upon the dead face of the officer.

What happened after that is not entirely clear, but Funk

reached Camp No. 3 late that afternoon carrying a few trinkets belonging to the luckless Gilmore. No one knows how he made it—how he crossed the raging cold streams that for three days had blocked their way—how he picked up the dim trail that the torrents of rain had washed away. Not even Funk himself.

But he got through. More than that, after a few hours' rest he assisted the searching parties in locating the bodies of his companions.

Thus did the young city boy, who knew the moods of the wilderness only from song and story, write his name in the book of glory.

The case of Charles C. Haines, of Baltimore, Maryland, who was cited for "unselfish and wholehearted cooperation in the welfare of his fellow-worker," is as unusual as it is dramatic. Haines raced his way to glory in his stocking feet.

The young easterner was a member of Company 324, stationed at Flintstone, Maryland, and engaged in early winter cutting of underbrush about three miles from camp. It was a cold day, the ground was frozen, and the streams encrusted with ice. The boys worked furiously to keep warm.

During the afternoon Haines heard one of his fellow members cry for help. Rushing to investigate, he found that Leroy Sadler had cut his foot with a brush ax. The wound was serious. Quick to realize the danger and the need for immediate medical attention, Haines set out to make his way to camp through the uncleared brush. He was at the time wearing boots which, as he ran, proved to be an impediment to his progress. Immediately he discarded them and continued in (Continuing on page 330)



Dock Cone, by extraordinary presence of mind, saved the life of a fellow worker injured by an ax blow.



Federico Plurad saved two companions by plunging into the flood-ravished St. Joe River in Idaho.

The Village Blacksmith Turns Botanist

By MARY CARPENTER KELLEY

ON THE banks of the Saco River down in East Hiram, Maine, there is a little blacksmith shop which outwardly resembles most of the other little blacksmith shops perched along the river as it winds down to the sea. The difference between this shop and the others, however, lies not so much in its appearance as in the sort of work that is done there and in the personality of the smith.

No one knows better than he how to set rims and to shoe horses. Should you enter his shop to find him at these tasks he would more than likely be twisting a slender support for a bridge lamp, bringing the end into a delicate scroll resembling the tendril of a climbing fern or fashioning the finial for the top of the standard in the likeness of a half-opened bud. Or he might be hammering a strip of iron into an andiron with a double scroll base like a reversed pair of the stout young croziers of the *Osmunda*. But whatever Henry Wilson Merrill, the village blacksmith, may be making with his two skillful hands guided by his beauty-loving mind, you may be certain that when it is finished it will be a thing of beauty and usefulness and thoroughly original in conception.

For here is a man who is known from one side of the United States to the other for his hand-wrought iron. In loveliness and simplicity of design, the ideas for which he has unconsciously absorbed from his nature study, he has become so proficient that his little shop on the Saco is sought out more and more by the discriminating buyer of such things as hinges, fireplace furnishings and lighting fixtures. He never makes duplicates and folk who want something different have indeed worn a path to his door.

"The Botanist Blacksmith!" How did you come by that

name?" I asked the first time I called to see the man whose treatise on Maine Ferns I had read in the *American Fern Journal*. I had expected to find a scholarly looking person who dabbled in wrought-iron for a hobby and not a real blacksmith in shirt and overalls with a forge and anvil.

"Well, sit down here on this box and I'll tell you," answered the slender, white-haired smith, his lips smiling under his gray moustache and his blue eyes twinkling with youth and enthusiasm. Yes, youth, for this man has not grown old despite his more than three quarters of a century. His interests in the woods and fields have kept him young physically and mentally.

"You see, I have a name that I've had to live up to, for one thing. I just had to be something more than the village blacksmith, for I was named for Henry Wilson, Vice President under Ulysses S. Grant. I was born in Natick, Massachusetts, on January 28, 1859, four years after Henry Wilson of that town had been sent to Washington as a United States Senator. Before he went he said to my father, who had been his most intimate friend for many years, 'If you ever have a boy, Steve, name him for me.' So when I arrived I was duly named Henry Wilson Merrill.

"When I was six years old my father was killed in the South and my mother and I moved down to Naples, Maine. I went to school but couldn't seem to learn. I was dull and the teacher used to say that she guessed I was going to be a fool. The truth was, though, that I was not interested in what went on in the school-house; my thoughts were in the fields and woods, where I spent all the time I could between lessons and chores. So things went on until I was thirteen.



Henry Wilson Merrill
The Botanist-
Blacksmith



Where the village "smithy" has stood for over fifty years. Here at East Hiram, on the Saco River in Maine, Henry Merrill has worked and studied. The covered bridge shown in the picture has now been replaced by one of cement.

Then something came over me—a sort of an awakening. I began to want to learn and from that day to this I have been a student.

"I had to go to work young and was apprenticed to a blacksmith over in New Hampshire. After I had learned the trade I came back to Maine and opened this little shop in East Hiram fully determined to learn something outside my work so that I would not always be just the village blacksmith. Well, along about the time I was twenty-two I happened to get hold of a Maine Agricultural Report that had an article on "Grasses and Sedges." I read it over and over. The subject interested me and I made up my mind to learn

all there was to be learned about it. I did. Then I branched out into trees, then flowers, and then ferns and after that into other realms of natural history. I had opened a door into a vast and beautiful world and I saw no reason why I should not combine botany with blacksmithing. For more than fifty years I have studied botany, collected specimens, and lost no opportunity to gather information concerning the great world about me. Just lately I have been doing some writing and folks have been asking me to talk to them about my ferns and flowers. I love to do it and I never let them pay me, for I get more fun out of it than they do.

"You say you would like to know particularly about the ferns? I haven't been outside of Maine to gather specimens but I have

a fine collection just the same—more than 600 kinds. There are only forty out of the 2,000 known varieties that grow here in the state and out of those I have found thirty-three in the Saco valley within a radius of ten miles of my shop.

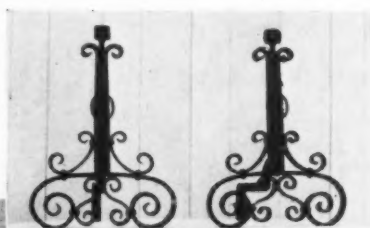
"Yes, I've had the honor of having a variety named for me. I found a Christmas fern with an irregular, torn edge, that none of the botanists had ever seen, and so they call it '*Polystichum Acrosti choides Laciniatum* Merrill!' Naturally I am pleased about it and after I am gone that will be my monument."

"I suppose, Mr. Merrill, that in a way you have been handicapped in your studies by the lack of books, for in this village there can't be much of a botanical library?" I remarked.

The andirons to the right were wrought in iron — the tops inspired by unfolding leaves and buds and the base outlines by the rings of their tendrils.



In nature this artisan finds his patterns—vine and tendril, bud and crozier are combined in design for the small stand and plant table shown here.



The andirons above (left) found their inspiration in the uncoiling fronds of a fern.

"Well, now, there's just where you are mistaken," he returned. "Let me tell you how I got my library," he continued.

"I have a theory that if you care enough about doing a thing to make a start no matter how many obstacles seem to be in the way, things will sort of work together to help you along. It has worked out that way for me and my library is the result of my wishing out loud that I could get hold of books that I needed but never really hoped to own. Do you really want to know how the theory works?"

Of course I did, and so Mr. Merrill, his blue eyes getting bluer with the wonder of his story, went on to tell me.

"One day, some years ago, in the summertime, a palatial affair, a sort of bungalow - on - wheels, rolled up to the door here. The owner came into the shop and asked if I could fix some gadget or other in the dining-room end of the concern; said he'd

stopped at several blacksmith shops and hadn't found anybody who knew what the trouble was. Said he'd heard that I was clever with my hands and didn't do things like everybody else.

"Well, I looked the thing over, found the trouble — just a simple affair that didn't take any time to fix, repaired it and told the man I guessed fifty cents would be all right for pay. He was pleased and

seemed in no hurry to get away so we began to talk. Pretty soon I started off on my favorite subject—botany—and as he seemed interested, although it was plain enough that he didn't know much about such things, I mentioned that

if I could only study certain books I could make sure of some matters that were puzzling me. We chatted a spell and when he got up to go he said rather casually that when he got back home to Pennsylvania perhaps he'd hunt up some books that his uncle had left him when he died and send them down to me.

"To tell the truth, I didn't think much about it and in fact had almost forgotten the whole incident when one day I got a notice from the freight office down at the depot that they were holding some packing-cases addressed to me and that I'd better send a truck down to get them. I laughed and thought the station agent was joking when he said to send a truck, but he wasn't, for there were several big heavy boxes with my name, Henry Wilson (Continuing on page 329)



Photograph by E. L. Gould

"Wind-Swept Cedars"



Photographed on Monhegan
Island, in Maine.

Listening—

*To lispings waters, tremulous and slow,
Whose lazy wavelets smooth the shining sand,
And sing, the while in rhythmic beat, and low,
A lullaby that only cedars understand.*

—JOHN PHELPS.

Honorable Mention—National Competition Conducted by
The American Forestry Association
for
Beautiful Photographs of Trees in America



Porky dropped the tough bark, but greedily consumed the tender cambium layer.

THE PORCUPINE-- FRIEND OR FOE?

By
K. D. FLOCK

THE yellow haired porcupine of the West (*Erethizon epixanthum*) holds a most unusual place in our wild animal population.

First of all, he is a destroyer of property in spite of his quiet personality and dumb expression. His temperament is not vicious but since no one can forecast just what a wild animal will do under certain circumstances, a classification of its danger rating is in terms of potentialities and Porky is just bristling with them.

The porcupine is also a romantic character. Impossible, you say, that this most slothful of our quadrupeds can be called romantic. In twenty years I have heard some unusual stories of this animal and the questions asked about him prove that people do spin yarns about him and others believe them. Here are some of the most common questions that have been asked me by people in western communities. How do porcupines throw their quills? Are they protected by law? Are they born with quills? Why do they chew trees? Do they hibernate in winter? What constitutes a porcupine's diet? Do they have any natural enemies? If so, how do their enemies kill them? Do they utter any sound? Are they good to eat? Will the quills puncture an auto tire?

Let us deal with Porky and his clan in terms of facts. They are brownish black in color and when full grown weigh thirteen to twenty pounds, the females being considerably the smaller. Their movement on the ground and in trees is slow and deliberate. They lack the alert and suspicious watchfulness of other wild animals. The hairs on their backs and sides have developed into spiny quills one-half to three inches long and are white with dark barbed tips. They are the porcupine's only effective defense against enemies.

The quills are not thrown. I have observed and encountered many porcupines and by no stretch of imagination could it be said the quills are actually thrown. There is one way the myth could have started however. When one is poked with a stick or molested at short range he will slap toward the danger with his powerful tail which is filled with short heavy quills. Naturally any loose quills which have become broken or are about to be shed will fly to a distance of a yard but they are purely accidental discharges and no preconceived provision of nature for defense or voluntary act of the animal.

One young, weighing about one and one-fourth pounds, is born, usually in the spring. The length of gestation is not definitely known. Even at birth the youngsters show

a tendency to protect themselves by turning their backs to the intruder, although at that time the quills are small. Bristles would better describe the defensive coats of the very young but these bristles soon become formidable spines ready for real work. Their choice food is the inner



This fifteen year old pine tree was reduced to a hopeless stick in one night.

AMERICAN FORESTS

bark or cambium of trees of numerous species. They relish the bark of a promising young sapling or delight in girdling a two hundred year old pine ripe for the saw. Many of our wild neighbors have a liking for salt but Porky is a glutton and it matters not to him if the salty or acid substance is incorporated in some valuable article, he takes it all including the saddle, boots and straps. From numerous sad experiences I sometimes wonder if leather isn't ice cream to these blundering youngsters of the wilds.

Porcupines do not hibernate though they do inhabit underground dens. These dens are usually located in rocks. They take advantage of natural crevices, caves or improved cavities under cliffs left by some former inhabitant. As a rule dens of porcupines are close to the food supply,—groups of trees, gardens, alfalfa fields or other areas supporting succulent vegetation.

In spite of Porky's apparent bulk and slow locomotion, he is a great gypsy. His migrations are of two forms, one seasonal and the other interseasonal, or purely feeding



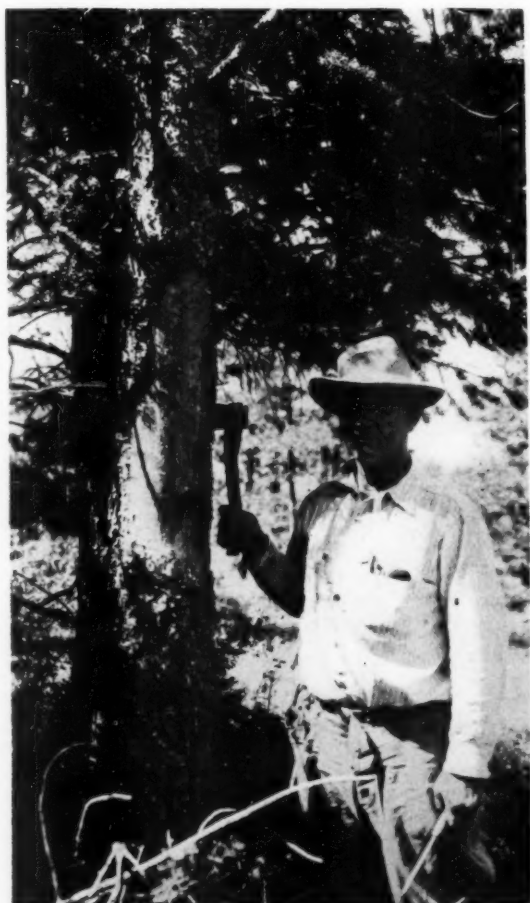
Answering an often asked question in the negative—proving Porky does not hibernate.

movements. Seasonal movements are definite and are governed by both climatic factors and food supply. The direction of migration is influenced by rainfall and the nature of winter precipitation. In the Northwest, the spring movement is a slow and deliberate migration from cliffs and lava rims to mountain meadows and valley farms. At this time the search is for succulent food. The first fall rains and snows make Porky speed up a bit and his movement back to rocky localities and the shelter of dens is for him quite rapid. In fall and winter the feeding grounds are within a quarter of a mile of rocky dens and it is during this period that trees suffer greatly.

In some localities large numbers of these animals have been known to remain in trees during deep snows. Cases have been recorded where individuals have been held to single trees for periods of from one to three months. Such a "station tree" is all but peeled when spring lets the animal down to the bare ground to seek green vegetation and start the migration to new feeding grounds. The spike-top tree is frequently the result of a winter "station." Such trees appear normal with the exception of the top which is dead and bleached for five to twenty feet down from the terminal shoot. Its value is reduced, and it is a splendid target for disease, insect infestation or fire by lightning.

When moving, the animals spend their nights feeding and traveling. They habitually seek "rest trees" in the day time and while resting gnaw at the bark. These trees can be identified by girdled branches and patches of bark taken from the boles at various levels. Constant repetition of such trees in any direction is an indication of the line of travel during a seasonal migration.

Actual experiences with porcupines over a period of years has been interesting and since observations are an indication of characteristics a few are here related. On a peak in northern Idaho, which lacks sixty feet of being a mile high, my partner and I were serving as fire guards and made our home in a cabin. It was our habit to empty the garbage can in a shallow hole below the cabin and since soil was scarce and digging difficult we used chloride of lime freely. Porcupines were plentiful but had confined their efforts to chewing the leather straps from our water sacks and gnawing on a stump formerly used as a meat block. One morning I made the regular trip to the garbage pit and reached under a rock for my can of chloride of lime. Porky had been there and had had what I would imagine was a warm meal as there was nothing left but the top and bottom of the package. These were tin and offered more resistance than the pasteboard sides. I made a wide circle around the spot but saw no evidence to lead



Such tormented trees lose vigor, are targets for disease, and eventually die.

me to believe that the hot dinner had at all disagreed with our visitor. Their digestive organs must be some of nature's most rugged works.

These fellows are very snoopy. While with a surveying party in Montana in 1929 one made a late call on me. My bedroom was the small office tent directly facing the front of the sleeping tent occupied by the crew. One moonlight night I awakened suddenly to find a porcupine sitting on my chest smelling my face. Luckily I saw the bristly outline of his body and retained presence of mind enough to avoid any movement. Though sluggish looking, a porcupine is quick to turn and bring his tail into play when surprised. I've seen them drive quills into a hardwood tool handle, so realized what could happen to my face and eyes. Without as much as a deep breath I made a quick dive under the heavy tarp and bedding. Slap! Slap! Went that tail where my shoulders humped the tarp under my visitor. In answer to my yelling the crew came to the attack with clubs and a lantern. After the porcupine had plastered my tent wall and bed with quills and the fellows had jumped around on me trying to get a good swing at the intruder, justice was done and an incident that might have had serious results became a joke.

Last year I took up temporary quarters in a Ranger Station that had been abandoned as a permanent abode for the Ranger some years ago but is still used as temporary quarters by the administrative officer of the district. It is a well constructed frame house with six rooms and a front and back porch. When scrubbing the porches evidently some soap was used that seeped into the wood and ran down the upright supports. The first ten nights I was there ten porcupines were killed while eating on these porch supports. Doubtless more replaced the ten and another season will see both the front and back porch without supports and large holes eaten in the floor. It is surprising how fast wood will give way to their steady gnawing. Destruction of a heavy packing box upon which creosote had been spilled showed how completely these acid and salt loving animals will chisel wood away. The boards on this box were one inch pine quite full of hard knots. Wagon spokes and pack saddle frames are made of toughest hardwoods, yet I have seen both gnawed through.

On the Musselshell River in August, 1932, a farmer killed eighteen porcupines in one alfalfa field of two acres within a period of two weeks. The field had paths cut through it from end to end. At dusk the uninvited guests would arrive singly and would apparently feed all night if not disturbed. One evening just after dark the farmer killed three with the help of a flashlight. Such systematic onslaughts by porcupines will destroy a crop before it is ready for harvest. This particular field was adjacent to a reef of limestone cliffs which no doubt furnished refuge for the porcupines.

In a lodgepole pine forest at 7,000 feet elevation with

trees averaging ten inches in diameter I counted ninety-six trees completely girdled at the base, forty-two partially girdled and seventy-one with patches of bark eaten away on large limbs or on the trunks. This was all fresh work, and while an unusually heavy infestation, similar damage is in evidence in most of our forested areas of the northwest. After several years of observation, I believe that porcupine damage over the ten year period—1919 to 1929—in the Little Belt Division of the Lewis and Clark National Forest, equaled or exceeded damage by forest fires. Fire blackens a solid block to scar the landscape with concentrated evidence of loss while Porky eats his way through our woods like a stubborn and deadly disease, injuring and killing trees here, there and in small groups, and he is ever at it.

Livestock losses also can be charged to the slothful porcupine. Cattle, while feeding, will encounter a porcupine on the ground and out of curiosity smell of the animal. The result is a painful muzzle full of quills from that muscular tail. The bovine surprise and pain does not end at this stage. The barbed quills, well fastened in the tender flesh about the nose and mouth make feeding a torture and starvation vies with infection to make a skeleton of the animal. On mountain ranges the owner or range rider often locates the unfortunate animal in time to pull the quills out but many are found too late. One range rider told me of administering aid to twenty-five head of cattle out of a range herd of six hundred, in one season.

Horses being more wary, are less often injured about the head. They will investigate a porcupine but more often strike or kick at it receiving quills in the legs and feet. The resulting infection often causes stiff joints or deformities. The majority of country dogs have had their heads filled with quills and since the spiny chap knows no distinction between pedigrees there is apt to be monetary loss here also.

Some of the questions enumerated earlier have been answered. The following notes will throw some light on the remaining ones.

Are porcupines protected by law? No. Out of inquiries to the states of Idaho, Montana, Washington, Nevada, and Oregon there was but one, namely Montana, that gave any data on a law. I quote from the letter written by the State of Montana, Department of Fish and Game: "A few years ago our State law prohibited the killing of porcupines, but this law was later repealed, and at the present time porcupines are not protected by the State."

The Bureau of Biological Survey in Washington, D. C., deals with all forms of wildlife history, control, and legislation, and the reply from it was that no law exists to its knowledge but that there was something of an "unwritten law" in the early days that porcupines, being easily killed, should be protected to afford obtainable food for lost persons in the woods.

Will the quills puncture an (*Continuing on page 330*)

FOREST SYMPHONY

HERE IS NO DISCORD—

Here no harsh, crude sights or sounds,

Save as they harmonize and blend

Into the rare perfection of the whole.

The gale-tossed mighty cedar and its kind,

So gently bend to shield the fragrant pine

That, in its turn sustains

The slim, young, silver birch whose leaves

Play bell notes to the fury of the storm.

And in the calm of summer, mosses grow

Where violets and sweet arbutus grace—

A trysting spot for lovers—

Stag and star-eyed doe

And bird-song makes a heaven of the place.

GABRIELLE CORTEAU.



EDITORIAL

Making the C.C.C. Permanent

ROBERT FECHNER, Director of Emergency Conservation Work, has on several occasions recently publicly advocated making the Civilian Conservation Corps a permanent institution to help meet the problem of unemployed youth. Mr. Fechner will find great numbers of people throughout the country sympathetic to that idea. Not only is the immediate problem of providing work and opportunity for young men in the formative years of their lives vitally acute, but there is nothing to indicate that the problem will not be with us in acute form for many years to come. The year's results shown by the Civilian Conservation Corps, we believe, have abundantly demonstrated its possibilities in this field. It is time that steps be taken to reconstitute it as a permanent agency in helping to meet the social problem that is clearly ahead in respect to the several million young men now out of school and out of work and the million more who reach the age of eighteen every year and are thrown upon the employment market. They must have opportunities to do useful work, to marry, to have careers or the future of the country is black indeed.

As a permanent institution the Corps would need to be revamped on a more stable and clear-purpose foundation with necessary flexibility to contract or expand as economic conditions dictate. Furthermore, its educational and employment activities should be more clearly defined to the end that it would serve its highest purpose in the building of men and in the restoration of natural wealth. Almost a year ago The American Forestry Association advocated a thorough study of the Corps' possibilities to determine the services it might render as a permanent agency and the

form it should take. The need for such a study by men of the highest caliber in social and economic planning becomes more apparent every day. Under its creative act, the Corps will come to an end March 31 next. It will be unfortunate indeed if in the meantime a permanent set-up is not thoughtfully formulated to take its place.

No emergency arm of the Federal Government has proved more successful or rendered more noteworthy results than the Civilian Conservation Corps. Those who know it best are its most ardent supporters. The one serious tarnish on its shield is the infiltration of politics in the making of certain appointments. Mr. Fechner and his advisory council have opposed politics in the Corps and they are to be highly commended for their stand, but despite their best efforts the political camel has pushed its nose into the tents of the C. C. C. The opening was made when the Corps had forced upon it the rule that appointments to certain supervisory positions were to be made only from men recommended by local congressmen. It is probably true that the Corps has been freer of politics than any other large emergency project but instances of political patronage, exceptional though they may be, are giving the Corps a political coat in the public mind that may unfortunately defeat its real merits as a permanent institution. Obviously, the American public will not stand for making durable an agency to deal with its young manhood that savors of political influences and patronage. The first step toward a permanent C. C. C. is a set-up so clearly non-political that it will inspire public confidence everywhere.

A Notable Project in Conservation

AFTER five years of persistent promotion, Florida has received the permission of Congress to buy a National Park in the Everglades with money of her own providing and to present it to the nation. That is the simplest statement possible of the Everglades National Park Act which President Roosevelt signed on the morning of Memorial Day.

Florida fought hard for her permission. Two Senators and two Representatives gave it unstinted time and labor at home and in Congress, and a year ago a Representative lost her seat through inability to secure its passage. The city of Miami has labored assiduously and entertained abundantly, and a local organization for the purpose has ceaselessly covered the country with promotion from its office in the City Hall.

Most local communities which work long and expensively for National Parks at home propose elaborate road systems to lure and hold motorists in the hope of bettering business, but not Florida. Year after year her promoting

organization has called solely for protection of her sumptuous semi-tropical life. Year after year successive bills failed to reflect this object—and failed to pass.

Last March, The American Forestry Association, eventually backed by many conservation and other organizations of great size and nationwide influence, procured an amendment to the bill providing that the National Park should be retained as a wilderness. So amended, the bill passed House and Senate on consecutive days. Miami's long dream was fulfilled.

Seldom if ever has a state earnestly sought the privilege of performing so notable and costly an act of pure conservation—unaided, for the Act specifies that no federal money shall be used in purchase. Uncle Sam's part will come later in protecting these rich treasures of primitive nature from motorist invasion and trampling tourists.

A state's expressed desire has never been more fully granted. Her sister states will happily watch the fulfillment of her dream.

MAKING TREE PORTRAITS

LIKE HUMANS, TREES ARE INTRIGUING
SUBJECTS FOR THE PHOTOGRAPHER

By RAYMOND A. WOHLRABE

THERE is a maple near my childhood home—a beautiful tree with spreading branches. It grows beside the old swimming hole. Memories, pleasant memories of carefree childhood days are so interwoven with that old maple that it has become a part of them. Many times in the years that have since gone by would I have given a good sum for a picture of that tree—a photograph of it as it was when I knew it.

Most amateur photographers, and likewise most professionals, look for subjects that are attractive, beautiful of form. Trees? To most of them trees were created solely to shape a background. They are things of secondary importance in their photographic work. The pictorial value of trees, singly, in groves, and in forests, has been generally overlooked.

Just as in human beings, trees show moods and character. In this way alone they become splendid picture subjects.

What could be a better interpretation of a mood than the splurge of the apple tree in the spring of the year?—the joy with which the silver maple greets a cooling breeze in the heat of a summer day?—the contentment of the cedars whispering among themselves on the mountain side? What could better illustrate staunch determination in character than a gnarled cypress or an alpine hemlock clinging tenaciously to a crevice in a rocky cliff? What is more suggestive of the romantic Old South than a huge live oak hung with Spanish moss? There are a thousand picture prospects in trees waiting to be discovered.

Composition, lighting and exposure are factors which determine what success a photographer will have in getting good tree portraits. Exposure is a factor to be considered in any photographic work. And the background should receive its share of attention, too.

There are two types of tree portraits—one for the purpose of recording the characteristic form, leaf structure, and bark detail, a sharply focused picture representative of the tree species; the other, less sharply focused, perhaps, a picture of a tree that is beautiful or has character and surrounding which are such as to contribute to its attractiveness. This last type is the kind considered here.

In any portrait, whether it is a portrait of a tree or some other object, the photographer must be sure that the subject

catches the eye of the observer. There are two ways of doing this—by subordinating other objects that might be a part of the picture or by shifting about before the exposure is made until a position is found which puts the component parts of the picture into the most desirable position.

In close-ups, focusing upon the subject will, with most cameras, throw all other objects off focus. They will be slightly blurred. The blurring should never be too pronounced. But its advantage is that it throws the attention of the observer to the more sharply focused object. It makes it stand out. But there are trees so large that by the time the camera is far enough away to include the whole tree in the picture, it is then no longer a close-up and every part of the picture is focused about the same. The softening of the sharp lines in objects in the background is practically impossible then, so the photographer must depend upon composition to make it stand out.

position to make it stand out.

Composition—the arrangement of objects constituting a picture—is largely independent of any set of rules. Good composition depends to a greater extent upon the judgment of the photographer. In dealing with subjects such as trees, changing the point of view is the only means of shifting the position of component

WANTED:

BEAUTIFUL PHOTOGRAPHS OF TREES

Photographers, both amateur and professional, are cordially invited to take part in The American Forestry Association's 1934 Competition for "Beautiful Photographs of Trees." Cash prizes amounting to \$225 and Certificate Awards of Excellence will be given for outstanding pictures. Both national and state awards will be made.

Awards will be based on beauty in photographic effect, utilizing trees singly, in groups, or in mass. There will be no restrictions as to tree species, season, or location, so long as the photographs are made in the continental United States.

The Competition opened June 1 and closes at midnight, December 31. Any photographer is eligible to compete, and there is no limit on the number of pictures that may be entered.

Write The American Forestry Association, 1713 K Street, N. W., Washington, D. C., for Competition rules and entry blanks.

parts of the picture. Upon it depends whether the foreground shall be shallow or deep, whether the tree is to be carefully centered or left to one side, and how much of the field it must share with other things.

Two types of trees might be taken to illustrate how the treatment of composition varies—the poplar and the oak. In either type it is never a good idea to have the tree itself exactly in the center. Even if the photograph is of a grove of trees it is always well to have one tree more outstanding than the others. Suppose the subject is a poplar. There might be several poplars in the picture but one particularly attractive has been selected to be made most prominent. Much of the beauty of this type of tree lies in its slenderness, its graceful lines. To emphasize these traits a shallow foreground is a big help. The distance from horizon to the top of the picture will be three quarters or more of its entire length. The less prominent poplars should form a more or less retreating line into the background. A road leading to one side of the back- (Continuing on page 333)

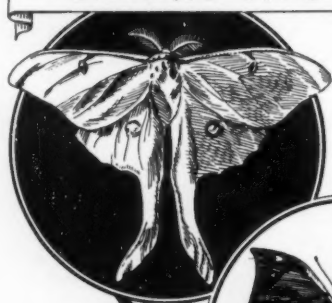


Ernest L. Crandall

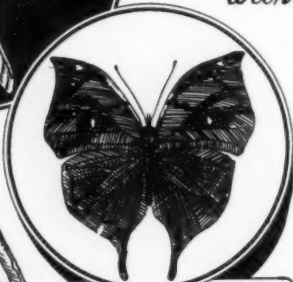
Composition and lighting determine beautiful tree portraits.

Exhibited in 1933 American Forestry Association
Competition—"Beautiful Photographs of Trees"

The LUNA MOTH



*Compared
with*



*The Butterfly
on a twig.*

**THE KALLIMA
or LEAF
BUTTERFLY**

BILL
VENN

FIELD AND FOREST

FOR

BOYS AND GIRLS

SUMMER ACTIVITIES OF NATURE

By JOHN HARVEY FURBAY, Ph. D.

Illustrated by William D. Vennard

THE summer months are crowded full of activity for all living things. Families are reared, and trained in the habits of the adults; food is gathered and devoured for growth; flowers shed their petals and devote their resources to producing seeds; and every green leaf is a busy industrial center for manufacturing food. June saw the greatest number of birds that are found during the year; birds flying here and there with morsels of food between their bills busy feeding their babies. A few kinds of birds may have started their second broods of young by now—the first family having become able to care for themselves. Then, you may also see a few birds, such as the mocking birds, still courting.

During June insects spring up almost everywhere. Great hordes of them descend upon newly-made gardens and feed upon all sorts of green plants. Insect eggs which were hidden over winter have now hatched; cocoons which enclosed insect pupae have now opened and we see that the pupae have turned into moths and butterflies; while the few adults which lived over-winter in various places have laid millions of eggs which are now hatching into more larvae (worms). Fortunately, most of these insect forms do not live long, but are devoured by their enemies—chiefly the birds.

Great numbers of mayflies and caddis-flies are seen about electric lights at night; and many bats—also attracted by the lights—are there to feed upon them. Many moths are also seen about night lights. Lunas, Cecropias, and Promethias are most conspicuous.

In the fields, one observes great yellow patches of mustard—which is a weed, although it is beautiful. Then, there are great fields of daisies which delight the artist more than the farmer. In these fields may be found snakes, feeding upon their choice foods. Some prefer the woods or rivers to the meadows. Bull-frogs are calling from the ponds, and the popular cricket-frog is especially noisy.

July is a month of maturing young. Nests are deserted, and the occupants are now "on their own." Half-grown rabbits are running through the fields, young mice are feed-

ing on their favorite grains, awkward young birds are testing out their wings.

Many fish eggs are hatching. And fence lizards are just laying their eggs. Some of the fish—particularly the Stickleback and Killifish families—are helping to reduce the number of mosquitoes by devouring great numbers of the mosquito "wigglers" in the water. There is not very much singing from the birds now. Some may still be feeding their young in the nests. Goldfinches, which are very late nesters, may be seen gathering thistle seeds for their babies. They never feed insects to their young, as do most other birds. And over the open fields, one may see millions of lighted lanterns proclaiming the activities of fireflies,—our first lanterns.

Every child has chased fireflies on summer evenings, and has marveled at the brilliance of the tiny lanterns carried by these insects. Sometimes the air seems charged with thousands of lights which flash on and off like baby flash-lights. If a number of these "lightning bugs" are collected in a glass jar, sufficient light may be obtained to see many objects in the dark.

Before modern lighting devices were discovered, fireflies were used by many people for lanterns. In the West Indies these insects are still collected and put in cages for lights. The cages are usually gourds with small holes in the sides, and the insects are sometimes an inch long.

In Java, the people place fireflies in a shallow dish of pitch. Here they remain stuck fast, emitting their light for hours, while the people carry them about for lanterns. Extra fireflies are carried in hollow tubes, like we now carry extra flashlight cells.

The Indians in Mexico often used luminous beetles, related to our fireflies, for lights. A few of them would light a room, we are told. When going out at night, the Indians would place these beetles on their feet in order to see where they were walking, and also to avoid snakes.

Now, let us turn to the firefly itself, and inquire into its secret. These insects are found in almost every country, but America seems to have the greater share of them. They

belong to the group of insects known as beetles (not bugs). Their "light organs" are located on the under side of the abdomen near the tail, and light is usually given off in flashes. This light is produced by the sudden burning (oxidation) of material within the insect's body. This substance which is burned is called "luciferin," and is a protein substance. It is only burned when another substance called "luciferase" is present,

along with plenty of oxygen. The light of the firefly is very dim, and has a strength of about .02 candle power at its best. This means that fifty fireflies would be necessary at their maximum illumination to produce one candle power. The light of the firefly is similar to X-rays, in that it will pass right through wood, paper, and flesh. Photographs have been made from these

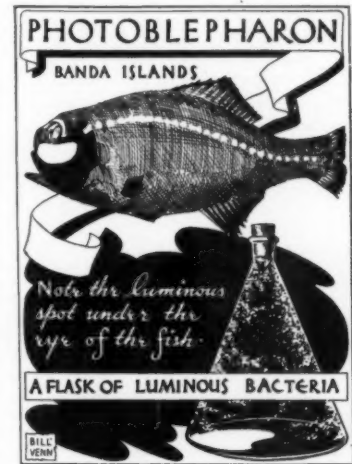
which hatch from them. The so-called glow-worms of New Zealand, which are famous for their light in caves and mines, are the larvae of certain gnats.

The fireflies, then, which swarm over our meadows on warm, dewy evenings like tiny meteors at play, are truly Nature's original lanterns. They have served for thousands of years as lights for many peoples, and they will probably continue to light primitive homes for many more years in distant lands. They represent one of Nature's most economical inventions, and exceed all artificial lights in efficiency, because little energy is lost in the form of heat.

And there are more lanterns that live,—great numbers of living things that give off light, and glow in the dark. The firefly is probably the commonest one of these living lanterns, but there

are others. These strange creatures have aroused the curiosity of man from the earliest times, and many fantastic superstitions have developed regarding them.

If you have ever camped in the woods all night you have probably seen a faint greenish light coming from the surface of rotting logs. The light is faint, then brighter, then again faint. Swamps and woodlands have often been thought to be haunted because of these glowing logs and stumps. Weird "will-o'-the-wisps" flicker here and there and then disappear among the trees. This strange light is not caused by ghosts, but is (Continuing on page 330)



light rays after they had passed through these substances.

What is the purpose of this lighting system for the firefly itself? Does it have a use? It certainly does. These lights undoubtedly serve as signals so that the males and females can find each other. Wingless females would hardly be able to attract males without their lights which glow from blades of grass at night, and guide the males to them. They may also serve to light the way, or to warn some enemy. Some glow-worms are female fireflies without wings. Still other glow-worms are the larvae of fireflies. The eggs of fireflies are luminous, and so are the larvae

FAMOUS TREES EVERY BOY AND GIRL SHOULD KNOW

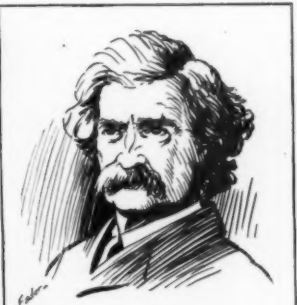
No. 15 - - "THE MARK TWAIN OAK"



ON JACKAGG HILL, TUOLUMNE COUNTY CALIFORNIA, MAY BE FOUND THE FAMOUS MARK TWAIN OAK—UNDER ITS AGED BRANCHES THE FAMOUS HUMORIST LOVED TO LINGER, AND THERE HE WROTE "THE JUMPING FROG OF CALAVERAS COUNTY" WHICH MADE HIM FAMOUS OVER NIGHT—



SAMUEL CLEMENS WENT WEST AT THE BEGINNING OF THE CIVIL WAR IN 1861 WITH HIS BROTHER ORION—THERE, IN THE NEIGHBORHOOD OF CARSON CITY, HE HAD A MOST HILARIOUS, BUT EQUALLY UNLUCRATIVE EXPERIENCE AS A GOLD MINER, THE RECORD OF WHICH HE HAS LEFT IN "ROUGHING IT"—GOON HE RETURNED TO JOURNALISM, AND MOVING TO SAN FRANCISCO, HE BECAME A MEMBER OF A WITTY GROUP THAT WROTE FOR THE "GOLDEN ERA" AND INCLUDED ARTEMUS WARD, CHARLES W. STODDARD AND ORPHEUS C. KERR—IT WAS WHILE MARK TWAIN WAS ASSOCIATED WITH THIS GROUP THAT HE WROTE "THE JUMPING FROG"—



SAMUEL CLEMENS ADOPTED THE "NOM DE PLUME" OF MARK TWAIN FROM A CALL USED BY MISSISSIPPI PILOTS IN MAKING SOUNDINGS ON THE RIVER AND BY THIS NAME THE GREAT OAK CONTINUES TO BE KNOWN—

SHORTLEAF PINE

Pinus echinata Miller

SHORTLEAF pine—one of four important southern yellow pines—attains commercial importance in Arkansas, Virginia, Missouri, Louisiana, Mississippi, Texas, South Carolina and North Carolina, but is found in varying abundance from Long Island and southwestern Pennsylvania south and westerly to eastern Texas and Oklahoma. It prefers well-drained light sandy or gravelly clay soil. On moist soils along the coastal plain it is crowded out by loblolly pine and longleaf pine with which it is often sold as lumber. It is able to withstand lower winter temperatures than

any of the other Southern pines.

The long clean trunk has little taper and is surmounted by a relatively short, pyramidal or rounded crown consisting of limbs arranged in more or less regular whorls. The oldest and stoutest of the limbs are rarely over twenty-five feet long and somewhat drooping. Trees eighty to one hundred feet high and two to three feet in diameter are not uncommon, but trees one hundred and twenty feet tall and four feet in diameter have been recorded. It reaches maturity at about one hundred and twenty years and occasionally

lives over three hundred years. The bark of old trees is yellow tinged with cinnamon red, broken into irregular plates which peel off into thin scales. On branches and young trees the bark is smooth and green, becoming brown and scaly with age.

The slender dark bluish green leaves are three to five inches long, occur in clusters of two or three and remain on the tree for two to five years.

In April or May the pale purple pollen-bearing staminate blossoms cluster at the base of the new leaf growth, while the cone-bearing pistillate flowers are borne two or four in a whorl on stout erect stems below the new growth. The short-stalked, dull brown, egg-shaped cones reach a length of one and a half to two and a half inches and mature in two seasons. They are the smallest cones of the four important southern pines. Each cone scale is terminated with a temporary prickle or broad-based spine. This characteristic is responsible for the scientific name *echinata* derived from the Latin word *echinus*, meaning hedgehog. Under each central cone scale are two pale brown triangular seeds about $\frac{3}{16}$ of an inch long, each provided with a wing about $\frac{1}{2}$ of an inch long and $\frac{1}{8}$ of an inch wide. When the cone opens the seeds drop out and may be carried several hundred feet by the wind. They germinate evenly and quickly, and frequently find places for growth in abandoned open fields, which gives rise to the common name "old field pine." It is more often called yellow or "short straw" pine, and sometimes rosemary pine.

It is unusual among all pines because of its ability to sprout



Photo by Maryland State Department of Forestry

Shortleaf pine frequently grows in open fields and is commonly called "old field pine." Its broad, rounded, dark bluish green crown with long somewhat drooping branches surmounts a straight cinnamon-red trunk.

from the stump, or when injured by fire. This is characteristic of young trees and is lost after they are six or eight inches in diameter.

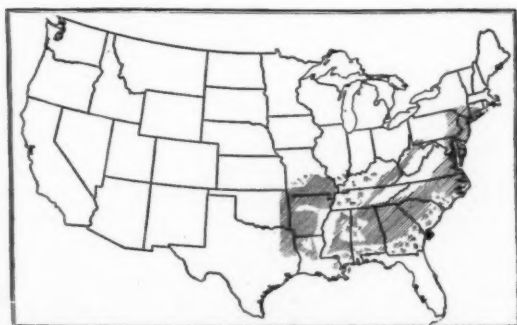
The yellowish wood is noticeably grained, moderately hard, strong and stiff. It resembles that of longleaf pine with which it is frequently sold, but is lighter and less strong. A cubic foot of air-dry shortleaf wood weighs thirty-six to thirty-nine pounds, as compared with forty to forty-four pounds for longleaf pine. It is used extensively for house-building materials, including framing, ceiling, weatherboarding, panels, window and door frames, casing and carved work. The grain shows well in natural finish or when stained. Frames of overstuffed furniture, chairs, desks, agricultural machinery, excelsior, wood pulp, mine props, barrels and crates are also made of shortleaf pine.

Commercial estimates of standing timber are combined under the general heading "yellow pine," which amounted to 118,132,000,000 board feet in 1932. About twenty-eight per cent or nearly 33,000,000,000 board feet is probably shortleaf pine. The same ratio might be applied to the 3,068,898,000 board feet of yellow pine cut and sold in 1932.

It grows associated with loblolly pine, oaks, hickories and sweet gum, but extensively in stands comprised only of shortleaf pine. Whole stands frequently attain an average height of fifty or sixty feet and nearly nine inches in diameter in thirty years. Such a stand may contain nearly fifty cords of wood capable of being cut into about 6,000 board feet of lumber. Assuming that the trees are sound and straight, the volume rapidly increases as the trees mature. At fifty years they may be ten to twelve inches in diameter and the volume of saw material will be from 20,000 to 40,000 board feet to the acre. Stands of more than 50,000 board feet to the acre are relatively uncommon as the timber is usually cut before it reaches that size.

Shortleaf pine, along with all other southern forest trees, suffers from the yearly burning of the woods. Not only are the immature trees killed, but the mature ones are seared and weakened, leaving them prey to injurious insects and fungi. The ability to sprout only partially offsets the damage and in no case makes up for the removal of the natural mulch of leaf litter from the soil. Next to the loss from fire is that from attacks of the southern pine beetle. This insect attacks the living trees and is particularly active after long dry periods, but will not live through winter temperatures of zero or colder. Other enemies include such insects as the pine sawyer, the Nantucket tip moth, and fungus diseases such as "red heart," whose spores frequently enter the tree through wounds caused by fire.

Aside from its value for timber, the broad pyramidal head, straight symmetrical trunk, and general vigor result in shortleaf pine being recognized as a handsome park or lawn tree. It may be planted for ornamental purposes from New York to Georgia and west to Missouri and Texas.



Natural range of shortleaf pine.



The three to five inch long needles are borne in clusters of two or three. Prickles on each cone scale help distinguish this tree.



The scaly bark of mature trees is almost cinnamon-red and broken into more or less rectangular plates.

THE VALLEY OF LOST HOPE

(Continued from page 300)

their fathers and grandfathers in making north central Mississippi a place of peace, happiness, prosperity and culture.

One of the first gullies to form on the old plantation began less than forty years ago as a very small wash in a little draw which led from the edge of the fertile valley, that had for many years been the bread basket of the section, directly to the front door of the old home built in 1841. This valley with a small area of hill land had been acquired by one T. W. A. Hamer, the grandson of one of the negro slaves who came with the Hamers from North Carolina. For several years "Old Tom" carried on faithfully and tried to farm "The Hollow," but each year he was pushed farther and farther south as the sands and silt from the ever-enlarging gully crept over a larger area, till at last he saw the entire, once fertile valley completely covered in many places to a depth of ten feet, become a barren waste. All the larger timber around the foot of the hills on each side of "The Hollow" has long since died and much of it has fallen and decayed, while the more hardy species, which have been able to survive, are hardly recognizable as only the tops are showing. "The Hollow" is indeed a desolate waste, and the "Old Gully" has grown year by year till it is now more than three thousand feet long, seventy-six feet deep and two hundred and fifteen feet wide. From it has been washed to the valley below over 12,000,000 cubic feet of materials, and it is rapidly growing longer, deeper and wider.

The few negroes who are left are eking out a miserable existence, and their attitude, like that of their white folk, who have long since departed, can best be expressed in the words of "Old Tom," the son and grandson of a negro slave, who sat one morning recently with the writer on the rim of the "Old Gully." With a wistful look on his wrinkled old face he remarked: "Yassah, Boss, us sho had a good farm down dere once pon a time, an' Iah's planned to had a good liberi all my life and leab it to my chilluns; but de 'Ole Gully' don ruin it, and Iah done lost hope. Iah's sho glad dat de C.C.C.'s don come, kase maby dey kin hep us."

This is a true story of the Hamer Place, widely known in north Mississippi. Its history is the history of a large part of the northwest hill section of Mississippi, comprising one-seventh of the entire state and now the scene of one of the largest land restoration projects of the Civilian Conservation Corps. The project is designed to halt the devastating soil erosion taking place on some four million acres of land much of which formed prosperous farms or plantations. Its ultimate purpose is to restore as much of the region as possible to economic use and particularly to lessen the danger and damage of recurring spring floods that with increasing violence sweep down the Tallahatchie and Yazoo

rivers carrying heavy losses to the Mississippi Delta.

Fifteen C.C.C. camps have been located in the section and approximately 3,000 men are at grips with erosion under the direction of expert soil engineers and foresters. The work in Mississippi extends through ten counties and similar erosion control is under way by other C.C.C. camps on land immediately to the north in Tennessee. As superintendent of one of the Mississippi camps, I have seen the destruction wrought by erosion over wide areas in this region and have studied the history of the lands. Without an informed background of the part the region has played in past American life, it is difficult to grasp the full significance of erosion's work throughout this part of the state and the magnitude of the task of soil restoration.

"The extent of the eroded area and the advanced stage of gullying makes the undertaking a stupendous one," F. J. Hurst, of the State Extension Service, recently stated. "It is difficult to describe the ruin that has been wrought or to estimate the losses that have been incurred in this

once productive and prosperous farming region. Unhindered soil erosion proceeding at a rapid rate for many years has already laid waste 4,000,000 acres of former fertile uplands and threatens to drive impoverished farmers off of depleted lands. The eroded soils are furthermore the source of destructive spring floods.

"The whole section is literally washing away. Not only the fertile top soil on the steep and rolling cultivated lands has been washed off and infertile subsoil left bare but huge gullies frequently running together and covering many acres have been gashed out in the hillsides. To complete the havoc, the sand

and gravel swept off the hills and out of the gullies has been carried down the valleys and deposited in the stream channels, causing overflows and covering the rich bottom lands with sterile sand. J. T. Copeland, extension agricultural engineer of State College and technical advisor of the erosion control project, recently stated that the unprotected and exposed cultivated lands are eroding on an average of 137 times faster than lands protected with vegetative cover.

"The erosion control program for the entire area has been mapped out under the supervision of Fred Merrill, state forester, with E. R. Lloyd, technician, J. T. Copeland, technical advisor, H. S. Mitchell, assistant state forester and in active charge of field work, and W. R. Mattoon, of the United States Forest Service. The area has been organized into twelve districts and the restoration project is based on volunteer cooperation of land owners, ninety-eight per cent of whom favor the program. Each C.C.C. camp of 200 men is in charge of a superintendent and five foremen who direct the work of the men in the field.

ANNUAL MEETING 1934

THE AMERICAN FORESTRY ASSOCIATION

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Time—October 18, 19 and 20.

Headquarters Hotel—Andrew Johnson Hotel, Knoxville, Tennessee.

Features—Three delightful and informative days of field trips revealing the highlights of the reconstruction work underway in the Tennessee Valley including visits to Norris Dam and Reservoir, to erosion control projects of the C.C.C., to the great Smoky National Park and many other features of the great Tennessee Valley Project.

Reservations—Room reservations should be made well in advance by writing either the Andrew Johnson Hotel, Knoxville, Tennessee, or The American Forestry Association, Washington, D. C. The hotel has made special convention rates of \$3.00 a day for single room and bath and \$5.00 a day for double room and bath, two persons.

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AROUND THE STATES

WITH

THE AMERICAN FORESTRY ASSOCIATION



Bill Seeks Enlargement of Grand Teton National Park

Solution of the long standing controversy over the ownership and administration of lands in Jackson's Hole involved in the management of the Yellowstone elk is attempted in a bill, S. 3705, introduced in the Senate on May 31 by Senator Carey of Wyoming. The bill provides for the enlargement of the Grand Teton National Park by some 234,000 acres, of which approximately 60,000 acres are now in the Teton National Forest and 32,000 acres in the Public Domain. The bill, it is understood, was prepared by the National Park Service and is concurred in by the Forest Service. It would enlarge the Grand Teton National Park on the east and south to include the Snake River Valley from the town of Jackson north, Jackson Lake, Two Ocean Lake and Emma Matilda Lake with surrounding territory now in the Teton National Forest. A strip of land six miles wide would separate the Yellowstone National Park and the enlarged Grand Teton National Park.

Thus enlarged the town of Jackson, Wyoming, would be the southern entrance to the Park and the lands along the lower Gros Ventre River to the north where winter feed is provided elk herds would be in the park. A road parkway one mile wide to connect the two national parks is provided. Provision is also made for rights of way through the park to and from the Teton National Forest for economic use and the summer home sites on the shores of Jackson Lake are protected for a period of years.

The bill further provides that the use of lands for game management within the enlarged park which lie south of Buffalo Fork, east of the Snake River and east of the existing main highway running north from the town of Jackson, Wyoming, to Menor's Ferry Bridge shall be under the administration of the Biological Survey. It also provides that Jackson Lake Reservoir, which has long been a reclamation project, shall continue as such although within the Grand Teton National Park. A unique feature of the bill is provision that the United States shall pay to the State of Wyoming annually for a period of ten years a sum equal to the taxes levied on all private property within the enlargement which shall be transferred to the United States for park purposes.

Although both bureaus concerned in the lands involved have approved the bill, opposition was indicated on the part of some friends of the National Park System on the grounds that it would open the park door to commercialism by the fact that it includes the commercial waters of Jackson Lake Reservoir. The bill, however, was favorably reported without a public hearing by a subcommittee of the Senate Committee on Public Lands con-

sisting of Senators Nye of North Dakota, Adams of Colorado, Ashurst of Arizona, Carey of Wyoming and Norbeck of South Dakota. Several requests have already reached Congress that the bill shall have a public hearing.

Mason Heads Lumber Code Authority

David T. Mason, Manager of the Western Pine Association, with headquarters in Portland, Oregon, has been appointed Executive Officer of the Lumber Code Authority. He will assume his new responsibilities in Wash-



DAVID T. MASON
Executive Officer of the Lumber
Code Authority

ington, D. C., on July 1. This position has not been filled since the resignation of C. Arthur Bruce in February, but much of the work has been carried on by the Authority's Acting Secretary, Carl H. Bahr.

Previous to Major Mason's appointment as Manager of the Western Pine Association in September, 1931, he was Senior Member of the consulting forest engineering firm of Mason & Stevens. His earlier experience includes working with the United States Forest Service in Montana, member of the forestry faculty at the University of California and for several years in charge of the timber valuation section of the United States Bureau of Internal Revenue.

New Projects to Aid Young Men

A program supplemental to the Civilian Conservation Corps but designed to extend relief to the surplus numbers of unemployed young men by providing jobs in conservation projects is under consideration in Washington. Details of the program are not available as this issue goes to press, but it is understood that President Roosevelt has under consideration further work projects in forestry and land reconstruction designed to meet two situations.

One is the need of relief in the drought area of the Central States. In his request to Congress for \$500,000,000 for drought aid, the President indicated that he had in mind allocation of \$50,000,000 for work camps for needy young men. Whether these camps would be added to the Civilian Conservation Corps or would be operated directly under the Federal Emergency Relief Administration is a question remaining for settlement, as is the program of conservation work to be undertaken in the drought area.

It is understood that the President, long interested in the possibilities of a big shelter belt reforestation program in the Prairie States, is leaning towards the initiation of such a program at this time with a part of the drought aid funds. It is known that the extent to which such a program can be made to help prevent the loss of agricultural soils by dust storms is being carefully explored. From all information available it seems likely that the Prairie States will witness a large tree-planting program in the fall, limited only by the amount of nursery stock available.

The other situation to which the President is said to be giving much thought is in respect to some 200,000 young men who have completed their year's service in the Civilian Conservation Corps, have been discharged and have been unable to find work. Whether opportunity for these young men to have continued work will be provided by enlarging the C.C.C. or by a supplemental corps of forestry workers is expected to be decided at an early date.

Disposition of abandoned C.C.C. camps is now occupying the attention of emergency conservation officials in Washington. One hundred or more camp sites with buildings are no longer needed because the work to be done from them has been completed. Congress has been asked to enact legislation giving the E. C. W. authority to turn these camps over for other purposes. The bill would provide the transfer first to other federal agencies, such as the Forest Service, where the camps can be used for administrative purposes; second, to states for forestry, park and recreational use; and third, to public organizations, such as the Boy and Girl Scouts, which can use them for conservation, recreational or public health purposes.

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Lumber Industry Starts Conservation Program

Planned protection of the country's timber resources as provided in the conservation agreement between the Lumber Industry and the National Recovery Administration went into effect over approximately four hundred million acres of forest land on June 1. Regional rules of forest practice under "Schedule C—Forest Conservation Code," which are printed as approved by the Lumber Code Authority, differ in detail but all are aimed at the same objective. In the main the forest practice prescribed seeks to prevent forest fires during and immediately following logging operations, to preserve immature trees and young growth during logging operations, to restock the land after cutting and to provide systematic cooperation in forest protection among forest owning groups and public authorities.

The Lumber Code Authority reports that during the first week of administration three timber owning firms in the southern pine region qualified to place their properties under sustained yield operations—the Crossett Lumber Company, Crossett, Arkansas; the Urania Lumber Company, Urania, Louisiana, and the Allison Lumber Company, Bellamy, Alabama. Sustained yield status under the Lumber Code entitles the operator to a ten per cent increase in his production quota.

Compliance with these rules will require the creation of new administrative staffs in each of the ten divisions. Agencies have been appointed numbering from eight to twelve men with forestry and lumbering experience. One or more men in each of the regions have been engaged for several weeks in selecting their technical and administrative staffs.

The Lumber Code Authority estimates that the eventual working of the entire project will require employment of 120,000 additional men. Of this number approximately 100,000 will be absorbed by the industry and 20,000 in Government service. The large number is necessary because of increased numbers who must watch for fires, and because the rules of practically all the lumbering divisions call for the organization and equipment of trained fire-fighting units. Removal of "slash and snags" and other debris usually left after logging will call for increased logging crews, while general supervision and enforcement of the rules will also call for many men. Meanwhile, the Forest Service is cooperating to the fullest possible extent. Federal responsibility for success of the con-

servation features of the Code will center in the branch of forest management, where after July 1 each National Forest region will have several men detailed to work exclusively on the Code.

Among other things these officers will explore the possibilities of sustained yield management in various localities. Those may be either in the form of single ownership or as cooperatives of several property owners.

While the Lumber and Timber Products Industries are proceeding as rapidly as possible under the terms of the Code which they have undertaken to administer, serious concern was recently expressed in a letter to the President by Wilson Compton for the Lumber Code Authority, regarding the slowness with which the Federal Government is meeting its responsibilities. Dr. Compton declared that the development of private forestry in America now depends upon four conditions, all of which are more or less within control of the Federal Government. These can be met by: (1) forest and forest industry loans and credits; (2) timber tax reform; (3) forest fire protection; and (4) acquisition of forest lands and timber.

To date, after an additional allotment has been made to cooperative forest fire protection funds for the remainder of the current fiscal year and with additional appropriations included in the Deficiency Appropriation Bill, the Federal Government is still half a million dollars short of the goal of two million dollars set up by the forest conservation conferences called by the Secretary of Agriculture during the past year.

No provision has been made for loans to forest industries, but favorable action on the Fletcher-Caldwell bills, as pointed out in other statements by Dr. Compton, would permit such loans from the Reconstruction Corporation. Hearings held on the Fletcher Bill, S. 3612, before the Senate Committee on Banking and Finance on June 8 may result in action before the close of Congress.

No clear-cut plans have been formulated for completing the timber tax reform or for carrying forward the forest acquisition program after the National Forest Reservation Commission has expended the twenty million dollars allotted to it a year ago. At this date it is evident that further legislation along these lines cannot be attempted until the next session of Congress.

President Plans Land Reconstruction on National Scale

A rounded program of national scope covering development of the Nation's watersheds was visioned by the President in his messages to Congress of June 4 and June 8. While including no request for immediate legislation, the message of June 4 and its accompanying documents submitted to the President by a committee consisting of the Secretaries of Interior, War, Agriculture and Labor were regarded as a preliminary study. Accordingly, the President suggested that Congress allow him, "between now and the assembling of the next Congress, to complete these studies and to outline to the next Congress a comprehensive plan to be pursued over a long period of years."

The whole plan is suggestive of the Tennessee Valley experiment, and was encouraged by the Norris resolution of last February which requested the President to present "a comprehensive plan for the improvement and development of the rivers of the United States,

with a view of giving the Congress information for the guidance of legislation which will provide for the maximum amount of flood control, navigation, irrigation and development of hydro-electric power." As stated by the President, this "opened the door to all interrelated subjects which come under the general head of land and water use. This broader definition brings to our attention very clearly," he continued, "such kindred problems as soil erosion, stream pollution, fire prevention, reforestation, afforestation, marginal lands, stranded communities, distribution of industries, education, highway building, home building and a dozen others."

Continuing the thought in his message of June 8, the President said:

"This is especially a national problem. Unlike most of the leading nations of the world, we have so far failed to create a national policy for the development of our land and water resources and for their better use by



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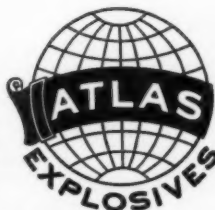
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"There are many illustrations of the necessity for such planning. Some sections of the northwest and southwest, which formerly existed as grazing land, were spread over with a fair crop of grass. On this land the water table lay a dozen or twenty feet below the surface and newly arrived settlers put this land under the plow. Wheat was grown by dry farming methods. But in many of these places today the water table under the land has dropped to fifty or sixty feet below the surface and the top soil in dry seasons is blown away like driven snow. Falling rain, in the absence of grass roots, filters through the soil, runs off the surface, or is quickly reabsorbed into the atmosphere. Many million acres of such land must be restored to grass or trees if we are to prevent a new and man-made Sahara. *****

"The rate of speed that we can usefully employ in this attack on impossible social and economic conditions must be determined by

business-like procedure. It would be absurd to undertake too many projects at once or to do a patch of work here and another there without finishing the whole of an individual project. ***** When the next Congress convenes I hope to be able to present to it a carefully considered national plan, covering the development and the human use of our natural resources of land and water over a long period of years."

The six major watersheds of the country have been allocated to as many subcommittees, each with two representatives from the Departments of Interior, War and Agriculture. These six national regions are the Atlantic, Gulf, Great Lakes, Eastern Mississippi, Western Mississippi and Pacific Coast. Each region embraces a natural unit of primary drainage, land use and transportation. These have been further divided according to states into twelve districts, for which committee chairmen are being appointed.

This study may result in the formation of a permanent non-partisan and non-political commission to govern the use of available funds. Using the Tennessee Valley Authority as a model, it is contemplated that it may turn out to be the most extensive and expansive of all social and economic betterment schemes yet evolved by the present administration. It would correlate such existing programs as the Division of Subsistence Homesteads, the forest purchase program and others, so as to affect the social and economic status of large portions of the population and find part time industrial work for those engaged on the soil during periods of each year.

C.C.C. Work Accomplishments for the First Year

The construction of forest protection roads and truck trails which, if placed end to end, would more than reach around the world; the clearing of firebreaks which, if stretched out in a continuous line, would twice encircle the boundaries of the United States; and improvement and protection work on forest and land areas greater than the combined land area of Massachusetts, Connecticut, Rhode Island, New Hampshire and Vermont, feature the first year's work accomplishments of the Civilian Conservation Corps, which ended April 1.

In the field of forest protection the Corps, during its first year, constructed 26,226 miles of protection roads and truck trails over which fire-fighting units can operate speedily; it constructed 5,733 miles of horse and foot trails as part of the fire protection system. Firebreaks, useful in preventing the spread of fire, were constructed to the amount of 18,531 miles. The reduction of fire hazards, the removal of highly inflammable dead trees and underbrush, was completed on 542,659 acres, while 17,053 miles of roadway and 3,563 miles of trail were relieved of inflammable matter.

To further the nation's fire protection system, 629 forest fire lookout houses and towers were erected, while 15,241 miles of telephone line was strung, connecting lookout houses with points of mobilization of fire-fighting units. Members of the Corps gave 686,709 man-days to fighting forest fires during the first year, 226,223 man-days to fire suppression, and 32,802 man-days to fire prevention.

The Corps worked toward the eradication of tree insects and diseases, such as the White Pine Blister Rust, to the extent of 1,870,116 acres in insect pest control work and 2,757,419 acres in tree and plant disease control work. In the field of rodent control, members of the Corps covered 4,405,785 acres.

Work performed under the general title of

forest stand improvement included thinning forest areas to improve the stand of valuable trees, seed gathering, tree planting, and the construction of necessary buildings and bridges.

During the first year the Corps performed forest stand improvement work on 953,318 acres, and general clean-up for improvement on 25,150 acres. It built 262 miles of forest highways. Conifer seeds were collected to the amount of 16,996 bushels, hardwoods and other seeds to the extent of 259,591 pounds. Trees were planted on 98,592 acres, and 67,935 acres were eradicated of poisonous plants. The number of bridges constructed amounted to 15,072, buildings 1,816, and tool houses and boxes 4,614.

In erosion control, 764,625 acres of land were benefited. The number of dams constructed totalled 420,633. In stream bank protection 110,020,183 square yards were recorded in the first year's report, while 53,614 linear yards of drainage ditches were reported. Land, mostly on the open range, was revegetated to the extent of 6,939 acres. Flood control survey lines totalled 11,512,251 linear feet, topographic surveys 48,838,059 square yards. Clearing for dam sites amounted to 3,633,131 square yards, clearing river banks 18,538,873 square yards. The Corps built 345,181 cubic yards of levees.

Work performed in improving park and forest areas for recreational use, and for other miscellaneous uses follows:

In public camp ground improvement 16,006 acres were cleared, and 208,865 linear feet of water systems installed. In water improvement work 26,788 acres of lakes and ponds were achieved, along with 695 miles of streams. In further improvement of the recreational use of streams, the Corps restocked them with 1,220,989 fish. Ponds improved for fish and birds numbered 1,170.

♦ Book Reviews ♦

MANUAL OF THE SOUTHEASTERN FLORA, by John Kunkel Small. Published by the author, on the Press of The Science Press Printing Company, Lancaster, Pennsylvania. 1554 pages, illustrated. Price \$10.50.

This new volume by Dr. Small, embodying the results of long years of exploration and study, assembles all the botanical knowledge of an area rich in plant life within which botanists and explorers have made plant studies since the first century after the discovery of America by Columbus. Here Thomas Walter followed John Bartram of Philadelphia and established America's second botanical garden on the Santee River north of Charleston, South Carolina, from which in 1788 evolved the first American plant manual of a definite geographical area, under the title "Flora Caroliniana." The "Manual of Southeastern Flora" replaces Dr. Small's "Flora of the Southeastern United States," the second edition of which appeared in 1913.

The material presented includes all the native flora growing in the region south of Virginia and east of the Mississippi River, and ranges from tropical plants to those characteristic of the Canadian and Hudsonian zone.—G. H. C.

MY GARDEN, Edited and Owned by Theo. A. Stephens. Published monthly at 34 Southampton Street, Strand, London. Illustrated. Price \$3.00 a year in the United States.

Contains many short articles by notable writers describing types of gardens, many with diagrams to aid the garden builder in beautifying his property. Enlarged photographs of different species of flowers which appear throughout the book will be of special interest to the reader in making his selection of garden flowers.—M. C.

PLANT PARASITIC NEMATODES AND THE DISEASES THEY CAUSE, by T. Goodey, published by E. P. Dutton and Company, New York. 306 pages. Price \$6.75.

Nematodes, frequently called Nemas, Eelworms or Roundworms, are a group of worm-like animals entirely unrelated to earthworms or to insect larvae such as cutworms or wireworms. Many species are parasites of animals, including man, while others are the causal organisms of serious plant diseases. "Plant Parasitic Nematodes and the Diseases They Cause" deals with plant-parasitic forms which are rapidly becoming of tremendous economic importance because of their wide distribution and the serious economic losses caused by them.

Dr. Goodey's personal investigations on plant parasites and in the field of nematology enable him to present the material in an interesting, clear and concise manner easily understood by the layman and without loss of scientific value. He has made a splendid contribution to the growing science of Nematology by collecting the more important available information on plant parasitic nematodes and assembling it in a most satisfactory manner.

The work is generously illustrated with 136 figures, which aid in identifying the various species. In addition, there are valuable sections on the technique of preparing specimens and on the identification of genera and species known to be plant parasitic.—G. T.



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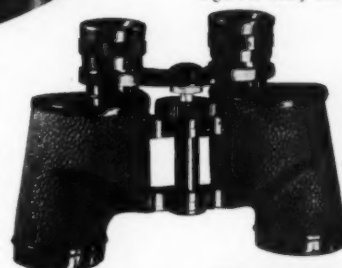
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FORESTRY IN CONGRESS

Senate Vitiates Public Domain Bill

By G. H. COLLINGWOOD

As this issue goes to press, Congress in a spectacular windup of the first New Deal session acted on legislation reported below and elsewhere in this number as follows:

(1) The Taylor Bill, to regulate grazing on the Public Domain, was reconsidered by House and Senate conferees and objectionable amendments modified but not adequately clarified. The bill awaits the signature or veto of the President.

(2) The Norbeck Bill, S. 3741, taking 40,000 acres from the Harney National Forest for a State Park, was passed by both Houses and sent to the President for his action.

(3) The Carey Bill, S. 3705, to enlarge the Grand Teton National Park, failed to pass.

(4) The Deficiency Appropriations Bill, H. R. 9830, carrying an item of \$225,000 for cooperative forest fire protection under the Clarke-McNary Act, was passed.

(5) The bill, H. R. 9788, authorizing a study by the Secretary of the Interior of the park and recreational area needs of the States and the United States, failed to pass.

(6) The Fletcher-Caldwell Bill to authorize the Reconstruction Finance Corporation to make loans to forest industries was not acted upon.

(7) The Wheeler-Howard Bill, S. 3645, providing a new basis for the administration of Indian lands, was passed with amendments.

An empty victory was achieved on June 12 when the Senate amended and passed the Taylor Bill, H. R. 6462, and the House concurred without discussion on the following day. The title, "to provide for the orderly use, improvement and development of the public range of the United States," remains the same, but the body of the bill was so riddled with amendments that its basic purpose was obstructed and it was cloaked with vicious possibilities. Accordingly, on June 14, Ovid Butler, Secretary of The American Forestry Association, urged President Roosevelt to withhold approval of the bill.

Emphasizing the long interest of the Association in bringing the Public Domain under administration by the Federal Government in a way to protect public interests and to promote conservation of natural resources, Mr. Butler pointed out that the Senate amendments so clearly obstruct the original purpose of the bill as to render it insidiously destructive of local as well as national public interests. "If the bill becomes a law," he declared, "it may, in our judgment, prove to be a land grabbing and land monopolistic measure comparable to Acts characteristic of freebooting days of the past."

Mr. Butler stressed especially an amendment by Senator McCarran of Nevada which was adopted as Section 16 and which, legally interpreted, clearly ties the hands of the Secretary of the Interior by making State laws enacted in the name of public welfare, police power or public health, superior to the Federal Act itself, thus giving the public land states power largely to control grazing on the Public Domain.

Another amendment provides that any holder of a lien on the live stock of a qualified permittee shall upon default of the permittee be entitled to his grazing rights under the act and that these rights shall be recognized as long as the permittee remains an "obligor of or to any such loaning agency, governmental or private." Commenting on this amendment, Mr. Butler stated, "it is well known that many banks and other private loaning agencies in the West have outstanding loans with stockmen, and it is conceivable, particularly under present conditions, that the effect of the provision in question might easily lodge vast control and

influence in the administration of the Public Domain in these loaning agencies."

Senator Ashurst's amendment to transfer the Forest Service to the Department of the Interior—a proposal vigorously opposed by The American Forestry Association—was not pressed and did not come up for discussion during the Senate's consideration of the bill. As originally prepared and introduced the bill was designed as a permanent measure empowering the Federal Government to enter upon a long-time conservation program of management for the Public Domain thereby justifying investments looking to the restoration of the forage and other public resources. The Senate, however, converted it into a temporary measure by a four word amendment making the act apply to the Public Domain "pending its final disposal."

A further restrictive amendment would limit the Secretary of the Interior to include in grazing districts only 80,000,000 acres of the 173 million acres which comprise unappropriated Public Domain. The provision of the bill as passed by the House allocating fifty per cent of grazing receipts to the states for county roads and schools, twenty-five per cent for the construction and maintenance of range improvements and twenty-five per cent for administration costs, was not changed by the Senate.

On May 30 the President signed the Fletcher-Wilcox bill, H. R. 2837, authorizing the creation of the Everglades National Park to comprise some 2,500 square miles in southern Florida. By this action the Federal Government may accept lands within the Everglades region of Dade, Monroe and Collier Counties and turn them over to the National Park Service for administration. The Federal Government through the National Park Service will designate the areas to be accepted, but no Federal money will be expended in acquiring the lands. Their acquisition is the responsibility of the Tropic Everglades National Park Commission, authorized by an act of the Florida legislature dated May 25, 1929, the twelve members of which are to be appointed by the Governor of Florida. Furthermore, no Federal funds shall be expended in the development of the area within five years of the date of enactment.

Passage of the Deficiency Appropriations Bill, H. R. 9830, in the House on June 4 confronts State Foresters and Forest Protection Organizations with the possibility that only \$152,000 may be added to the cooperative forest protection funds for the fiscal year beginning July 1 rather than \$225,000 as requested by the Forest Service. Previously \$375,000 were released by the Bureau of the Budget for distribution to the states for cooperative forest protection work under the Clarke-McNary Act during the period ending June 30, 1934. This is being used partly to repay the states for money which they expected to receive during the present fiscal year for cooperative forest fire protection but which was withdrawn under the economy provisions. According to a statement before the House Appropriations Committee on May 23, by Assistant Forester Fred Morrell in charge of the Branch of Public Relations, "the states are very much undermanned for fire protection and any amount of money that the Federal Government can give to them will be used to strengthen and build up their protection organizations."

The same bill carries \$150,000 for administration and enforcement of the Federal Hunting Stamp Act of March 16, 1934, and for carrying into effect some of the provisions of the Migratory Bird Conservation Act. This will include the cost of designing, engraving and printing the Hunting Stamp, which is expected to be available early in July. This money will be reimbursed to the Treasury from the first \$150,000 of revenue accruing in the Migratory Bird Conservation Fund from the sale of the stamps.

Forty thousand acres within the Harney National Forest in South Dakota would be transferred to the Custer State Park by Senator Norbeck's bill, S. 3741, which passed the Senate without public hearings or Departmental consideration on June 8. The area includes

Harney Peak, on which the Forest Service maintains an important lookout, and forest land now adequately protected by National Forest administration under a cooperative plan in effect since 1928 with the State Park and Game Commission. A similar bill introduced by Senator Norbeck in 1931 was defeated after it had passed the Senate. The American Forestry Association holds that passage of this bill would establish a precedent which would break into National Forest lands and segregate them for state purposes to an extent that would seriously affect the economic use of the National Forests for timber growing, grazing and other public purposes.

Another bill which under its present form threatens to open the door for transferring recreation areas in National Forests to the states was introduced as H. R. 9788 in the House and S. 3724 in the Senate. These bills would authorize the Secretary of the Interior to make a comprehensive study of the public park, parkway and recreational area needs of the United States and of the several states and to recommend the transfer to any state or political subdivision, such Federally owned lands as meet their recreational needs. Originally designed to apply only to submarginal areas withdrawn from cultivation by Federal purchase, the House bill was amended by the Committee on Public Lands to apply to any lands now in Federal ownership. The American Forestry Association has expressed its opposition to these bills and asked for public hearings in which they may be clarified.

The Senate Committee on Banking and Currency under Senator Fletcher conducted hearings on June 8 on the Fletcher-Caldwell bills, S. 3612 and H. R. 9649, to permit the Reconstruction Finance Corporation upon approval of the Forest Service and the Secretary of Agriculture to make loans to forest industries.

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This summer, when the American Forestry Association's TRAIL RIDERS make their two weeks' pack trip thru the Gila National Forest, straddling the New Mexico-Arizona line, most of them will get their first glimpse of the limitless out-of-doors possibilities of the Far Southwest.

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Wright Heads Wild Life Division of National Park Service

George M. Wright has been named head of the Division of Wild Life in the National Park Service. For three years previous to his appointment he served without salary or expenses in making a study of the wild life resources of the National Parks. This resulted in the 157-page report "Fauna of the National Parks of the United States," published in 1933, of which Mr. Wright was co-author, with Joseph S. Dixon and Ben H. Thompson.

After graduating in forestry from the University of California, he accompanied Joseph S. Dixon on the Harvard expedition to the Mount McKinley National Park in Alaska, where they were the first to discover the nests and eggs of the surf bird. Later he was appointed Junior Park Naturalist in the Yosemite National Park, from which he resigned in 1930 to undertake his National Parks studies. His present headquarters are in the western office of the National Park Service at Berkeley, California.

Attempt to Climb Mt. Foraker Planned

The scaling of ice-covered Mount Foraker in Mount McKinley National Park, Alaska, a feat as far as known never before accomplished, is to be undertaken next July by a party headed by C. S. Houston, of Cambridge, Massachusetts. The party will carry with it a short wave radio set and will keep in communication with the airplane base at Fairbanks.

While no previous climbs are recorded of 17,000 foot Mount Foraker, Mount McKinley, 3,300 feet higher, the highest peak on the North American Continent, has been successfully scaled several times. The latest ascent, in the spring of 1932, was made by the Lindley-Liek expedition, the first party ever to reach the tops of both the north and south peaks of that mountain. This expedition was composed of Alfred D. Lindley, an attorney from Minneapolis; Harry J. Liek, park superintendent; Erling Strom, for many years associated with skiing activities at Lake Placid; and Grant Pearson, park ranger.

National Arboretum Area Topographic Survey

With completion of purchase by the Federal Government of 386 acres for the National Arboretum in the northeast quarter of the District of Columbia, contract for a topographical survey of the area has been given W. N. Brown, Inc., of Washington, D. C. This survey is supplemental to a photographic aerial mosaic and will furnish data for a map showing contours at one foot intervals for use by the Bureau of Plant Industry, preliminary to completing plans for roads, trails, and buildings. It is made possible by an allotment of \$10,000 from the Public Works Administration.

Adjoining lands previously in Government ownership are expected to be added to the purchased lands so as to bring the total area of the National Arboretum to approximately eight hundred acres.

Louisiana Forests Aid Farmers

Louisiana farmers received an income from pulpwood in 1933 which, for the first time, exceeded two million dollars, according to figures just released by Robert Moore, extension forester, Louisiana State University. The pulp and paper mills of the State during 1933 purchased \$2,129,935.42 worth of pulpwood from farmers. This exceeded by \$500,000 the previous high record of 1929 and is the more

remarkable because the 1929 record was based on purchases of seven mills, while the 1933 figure is for six mills, one having been dismantled in 1930.

This is the fifth year the Extension Service has collected these figures on pulpwood purchases from farmers. They are summarized below for the five year period: 1929, \$1,650,600; 1930, \$1,559,863; 1931, \$1,452,928; 1932, \$1,394,929; 1933, \$2,129,935.

Timber Conservation Board Reports

Although the Lumber Code has been in operation for a period of six months, there has been no net national progress toward balancing lumber production with consumption, according to the report of the Special Lumber Survey Committee of the Timber Conservation Board for the first quarter of 1934.

The Committee pointed out that during the first quarter national lumber consumption increased over the corresponding period of 1933, but fell below mid-year levels. It was estimated at 4,000,000,000 feet. Production, however, registered a still greater increase, partly, it was pointed out, in anticipation of a building recovery which has been slow in materializing. Production during the first quarter was approximately eight per cent above shipments, based both upon estimated totals for each region and upon the industry's figures.

The report repeated its recommendation for stocks reduction of 2,000,000,000 feet. It analyzed the unbalanced condition of inventories and urged the industry to promote research and increase sales effort, both in the foreign and domestic field.

War on Dutch Elm Disease

State and federal forces are drawing the battle lines in the war on the Dutch elm disease. Aggressive scouting during the winter and spring has located 1,500 trees infected with the disease, most of which are within a radius of thirty-five miles of New York harbor. In this area approximately 1,260 infected trees have been found in New Jersey and 230 in New York. Only two have been found thus far in Connecticut. All trees located are destroyed.

Aggressive scouting throughout the region where the elm grows is being continued. Already more than 400,000 elms have been examined. The summer months, according to the Bureau of Entomology, will show how widespread is the menace to the most beloved American tree.

Presence of the disease in an elm tree shows itself by the external symptom of wilting branches. Not every sick elm has the Dutch elm disease, the Bureau points out, but wilting, yellow or brown leaves, accompanied by brown streaks in the young wood, are suspicious symptoms and should prompt the finder or owner to send at once specimens of the twigs to the newly established Dutch Elm Disease Laboratory, Room 207, Post Office Building, Morristown, New Jersey. Small branches approximately three-eighths of an inch in diameter and six inches long make a satisfactory sample. Every sample should be accompanied by a statement of the exact location of the tree.

Experts of the Department of Agriculture, as a result of their warfare work to date, believe that the Dutch elm disease can be eradicated provided public support continues to be forthcoming. Organized federal, state and local forces are scouting cities block by block in the known infected areas. They will conduct the necessary scientific research but must depend upon those interested to report any evidence of the disease.



Forestry Questions Submitted to The American Forestry Association, 1713 K St., N. W., Washington, D. C., Will be Answered in this Column. . . . A self-Addressed Stamped Envelope Accompanying Your Letter will Assure a Reply.

+ + +

QUESTION: What was the worst forest fire in history, and how much damage did it do?—R. F. T., Jamaica, N. Y.

ANSWER: The Miramichi fire of 1825, which destroyed the timber on over three million acres of land in Maine and New Brunswick and caused the loss of one hundred and sixty lives, is the worst fire on record. However, the record number of lives lost was in the Peshtago fire in Wisconsin where, in 1871, 1,280,000 acres of land were burned over and 1,500 lives were lost.

QUESTION: I have a small cottage in the woods, which is literally built around a tulip poplar tree about fifty years old. It is apparently in a healthy condition and grows in a well, formed by the low walls of the house with plenty of room for swaying during a storm. Is it possible and feasible to install a lightning rod on the tree itself? How would lightning be likely to act if it were to strike the tree? Would it be likely to pass through the tree into the ground or would the cottage, built mainly of wood, without a cellar, be likely to be destroyed? The other source of worry is the possibility of the tree crashing. Would the location of the tree cause unsuspected decay?—J. E., Pennsylvania.

ANSWER: The tree is comparatively young and under normal conditions will be good for another fifty years, or more, which is probably longer than one may expect for the cottage. So long as the tree is in good condition with every sign of vigor among its branches and leaves there is comparatively little danger from a crash.

The tree may be protected with lightning rods as are a number of the largest trees on the Mt. Vernon estate of George Washington. One or more rods are extended from several feet under the ground surface at the base of the tree, to the upper branches. This is briefly described in Farmers' Bulletin No. 1512, "Protection of Buildings and Farm Property from Lightning," available from the Department of Agriculture, Washington, D. C.

QUESTION: Please tell me the approximate number of trees indigenous to this country.—F. L. S., St. Louis, Missouri.

ANSWER: According to the Forest Service "Check List," there are 1,117 different trees native to continental United States, of which 182 are of special commercial interest. Perhaps with new discoveries and new uses of wood this number of trees of commercial importance will increase in the future.

Forest Service Transfer Opposed

Declaring that transfer of the Forest Service from the Department of Agriculture to the Department of the Interior would be prejudicial to the best interests of forestry and would threaten continued progress in forest conservation, the Central States Forestry Congress meeting in the Tennessee Valley May 29, 30 and 31, went on record in opposition to the proposed amendment to the Taylor bill designed to effect a transfer of all federal forestry work to the Department of the Interior. The resolution called upon members of Congress and the President to oppose the transfer.

The meeting of the conference was considered the most successful in its five years' career. It was attended by approximately 150 conservation representatives of the ten central states. Several field trips were taken by the delegates, including visits to the Norris Dam, erosion control projects and the Great Smoky National Park. The final session of the conference was held at Gatlinburg just preceding a trip into the Park.

Notable among the speakers at the conference was Dr. Arthur Morgan, Director of the Tennessee Valley Authority, Robert Fechner, Director of Emergency Conservation Work, and F. A. Silcox, Chief of the United States Forest Service. Major George L. Berry, President of the Central States Forestry Congress, presided over all sessions, and James O. Hazard, Secretary of the Congress, arranged the meeting.

The 1935 meeting of the Congress, it was announced, will be held in Michigan.

C. C. C. Men Get Jobs

According to Robert Fechner, Director of Emergency Conservation Work, a total of 39,726 enrolled men were discharged from the Civilian Conservation Corps forest camps to accept outside employment during the six-month enrollment period ending March 31, 1934.

The comparative figures for the six-month period show that the smallest number of men had left to accept employment in October, 1933, and the largest number in March, 1934. The total number of men who left the camps to take outside jobs, by months, is shown as follows: October 4,927, November 5,971, December 5,023, January 8,331, February 6,601 March 8,873.

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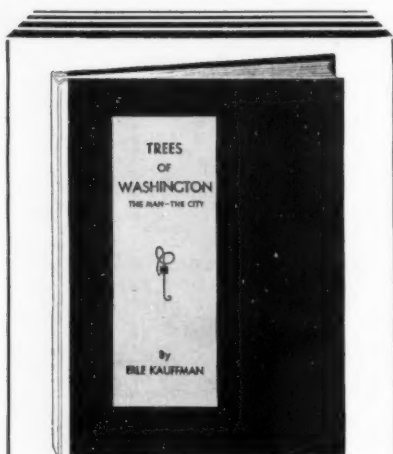
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Conservation Calendar in Congress

Published monthly while Congress is in session as a service to the members of The American Forestry Association. This Calendar contains bills introduced at the Second Session of the Seventy-third Congress from May 18 to June 18 inclusive. All bills failing to pass will die with this session. A few which will probably be reintroduced in the Congress to convene in January, 1935, are listed under "Bills Continued."

BILLS APPROVED

- S. 8—BORAH—To add certain lands to the Boise National Forest. Passed Senate May 10. Passed House in lieu of H. R. 7927, May 14. Approved May 17. Public Law No. 228.
- S. 1982—MCNARY—To add lands to Mount Hood National Forest in Oregon. Passed Senate February 20. Passed House May 14. Approved May 21. Public Law No. 238.
- S. 2442—KING—For the protection of the municipal water supply of Salt Lake City, Utah, and including the amendment of mining laws within the Wasatch National Forest. Passed Senate April 27. Passed House in lieu of H. R. 5531 May 21. Approved May 25. Public Law No. 259.
- H. R. 2837—WILCOX—To provide for the establishment of the Everglades National Park in Florida. Passed House May 24. Passed Senate May 25. Approved May 30. Public Law No. 267.
- H. R. 8494—KNUTE HILL—For the modification of the terms of existing contracts for the sale of timber on the Quinault Indian Reservation. Passed House March 28. Passed Senate May 29. Approved June 6. Public Law No. 294.
- H. R. 7982—LEWIS—To establish a National Military Park at the battlefield of Monocacy, Maryland. Passed House May 14. Passed Senate June 12.
- H. R. 7759—BOILEAU—To amend the law relating to timber operations on the Menominee Indian Reservation in Wisconsin. Passed House May 14. Passed Senate June 6. Approved June 15.
- S. 3645—WHEELER—To conserve and develop Indian lands and resources; to establish a credit system for Indians; to provide for higher education for Indians; to extend toward Indians the right to form business and other organizations. Passed Senate June 12. Passed House June 15.
- H. R. 8781—HAYDEN—To increase employment by authorizing an appropriation to provide for emergency construction of public highways and related projects. Passed House May 11. Passed Senate June 6.
- H. R. 9830—BUCHANAN—Deficiency Appropriation Bill for the year 1934. Emergency Appropriation Bill for 1935. Passed House June 4. Passed Senate June 15.
- S. 3521—BANKHEAD—To facilitate purchases of forest lands under the Act approved March 1, 1911. Passed Senate June 6. Passed House June 9 in lieu of H. R. 9011. Approved June 15. Public Law No. 342.
- H. R. 9646—BIERMANN—To authorize the acquisition of additional land for the Upper Mississippi River Wild Life and Fish Refuge. Passed House June 7. Passed Senate in lieu of S. 3411 June 13.
- H. R. 7653—VINSON—To establish the Ocmulgee National Monument in Georgia. Passed House May 21. Passed Senate June 6. Approved June 14. Public Law No. 350.
- H. R. 8639—DIMOND—To repeal certain laws providing for the protection of sea lions in

- Alaska waters. Passed House May 7. Passed Senate in lieu of S. 3525 June 14. Approved June 18.
- H. R. 8779—WEAVER—To authorize the Secretary of Agriculture to adjust claims to so-called "Olmstead lands" in North Carolina, which are within the boundaries of the Nantahala National Forest. Passed House May 14. Passed Senate June 6. Approved June 14.
- H. R. 5312—CROSBY—The conveyance of abandoned lighthouse reservation in Erie, Pennsylvania, to the city for public-park purposes. Passed House May 21. Passed Senate June 6. Approved June 12. Public Law No. 312.
- S. 3443—BARKLEY—To provide for the creation of the Pioneer National Monument in Kentucky. Passed Senate May 14. Passed House June 4.
- H. R. 7360—WEAVER—To establish a minimum area for the Great Smoky Mountains National Park. Passed House April 16. Passed Senate June 6. Approved June 15.

BILLS IN DOUBT

- S. 3741—NORBECK—To convey certain lands to South Dakota for public park purposes. Passed Senate June 8. Passed House June 16.
- H. R. 6462—TAYLOR of Colorado—To stop injury to the public grazing lands by preventing overgrazing and soil deterioration, to provide for their orderly use, improvement, and development, to stabilize the livestock industry dependent upon the public range. Passed House April 11. Passed Senate June 12 amended. Conference report agreed to by both Houses.

BILLS CONTINUED

- S. 3705—CAREY—To extend the boundaries of the Grand Teton National Park in Wyoming. Passed Senate June 13.
- S. 2934—SMITH—To facilitate the acquisition of migratory bird refuges. Passed Senate May 29. House Report No. 1845 May 31.
- S. 3286—FLETCHER (H. R. 8808—HOWARD)—Authorizing the exchange of lands reserved for the Seminole Indians in Florida for other lands. Passed Senate May 28.
- S. 3724—WAGNER (H. R. 9788—DE ROUEN)—To aid in providing the people with adequate facilities for park, parkway and recreation area purposes and to provide for the transfer of certain lands to states and political subdivisions thereof. Report No. 1412 June 14.
- S. 2856—SMITH (H. R. 9702—BUCK)—Authorizing the adjustment of existing contracts for the sale of timber on the National Forests. Passed Senate June 14.
- S. 3785—FLETCHER (H. R. 9916—CALDWELL)—To amend the Reconstruction Finance Corporation Act so as to extend the provisions thereof to private corporations to aid in constructing and maintaining facilities for the marketing, storing, warehousing, and/or processing of forest products. To Banking and Currency June 14.

Edward W. Nelson Dies

With the death of Dr. Edward W. Nelson, former Chief of the Bureau of the Biological Survey, one of the most famous naturalists in America passed. His brilliant work has perpetuated his name, both through his own outstanding contributions to science and through the recognition tendered him in geographic and zoological nomenclature.

For him the Nelson Range of mountains, in California, was named—as was the Nelson Lagoon, in Alaska and Nelson Island, at the mouth of the Yukon River. A genus of plants, one of mammals, and more than one hundred species and sub-species of birds, animals and plants also bear his name.

Dr. Nelson was Chief of the Biological Survey from 1916 until 1927 and his spirit of public service indefatigable, despite a life-long struggle against ill health. Mr. J. N. Darling, present Chief of the Biological Survey, has characterized his career as one of "vast courage and great accomplishment."

Mining Laws Corrected In Mount Hood and Wasatch National Forests

Steps toward releasing the National Forests from entanglements of obsolete mining laws have been accomplished by passage of S. 1506 to amend the mining laws as applied to the Mount Hood National Forest in Oregon, and S. 2442, to protect the Salt Lake City municipal water supply on the Wasatch National Forest in Utah. Another Act similar to these but applying to the Prescott National Forest in Arizona was passed during the Seventy-second Congress. Under these Acts signed by President Roosevelt on May 11 and 26, the mineral locator or patentee may acquire title to ore bodies, but title to the surface of land within mining claims is reserved in the United States. The Acts will not interfere with legitimate prospecting and mining, but are designed to correct abuses under which locators and patentees have frequently usurped valuable areas of National Forest lands for purposes wholly unrelated to mining.

THE VILLAGE BLACKSMITH TURNS BOTANIST

(Continued from page 306)

Merrill, East Hiram, Maine, on them as big as life. And do you know, that stranger had kept his word and sent me whole sets of the most wonderful books on botany that you ever saw. Some had hand-colored plates and genuine leather bindings; some were first editions and some were autographed. I never had dreamed there were such books in the world. And to think that they were all mine—I haven't got over the wonder of it yet and I don't suppose I ever will. Now, what do you think of my theory?"

We talked a while longer and after Mr. Merrill had modestly told me of having been requested by the editor of the *American Fern Journal* to contribute a paper to it, and of having been invited to join the Josselyn Botanical Society of Maine and the Maine Mineralogical Society, and of his pleasure in addressing the various service and literary clubs in his part of the state, he said that, after all was said and done, the thing that counted most was that he had found a mental world in which he could dwell contentedly and happily all the days of his life no matter what material misfortunes might come to him, for fifty years of nature study in the confines of his own town and county had revealed to him a tiny part of the wonder and beauty to be found so close at hand.



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Catalog Mailed on Request
SAMUEL N. SPRING, Dean

THE PORCUPINE -- FRIEND OR FOE?

(Continued from page 310)

auto tire? There is little doubt of this providing the barbed part of the quill gets well set into the fiber of the tire. They constantly work inward with every flexing movement. It is safest to let Porky waddle away when your lights surprise him in the rut of the road.

Are porcupines edible? I have heard of them being eaten. Out of curiosity I tried part of a hind quarter once and found it very much like chewing a piece of rubber tire flavored with pine tar soap. The victim was a patriarch of many summers, so there is a possibility the young ones are better. If you ever attempt to skin one use a pair of pliers and a long-handled knife. Even then Porky might do much toward evening up the score.

Do they have any natural enemies? Animals that can and do kill them are weasels, coyotes, wolves and probably cougars and lynx. No doubt the attack on a porcupine is a last resort for food. A man of unquestionable integrity, who had trapped for twenty years in Montana, reports that many wolves

he caught in earlier days had porcupine quills in the neck and shoulders. He also saw a weasel attack a porcupine and observed evidence in the snow of other instances in which the blood-thirsty little animal had slashed the porcupine's throat from beneath where quills are almost wanting. It is said that a hungry coyote will maneuver a porcupine to get him on his back and take a few quills in exchange for a meal when desperate for food.

Do porcupines utter any sound? When alone they seldom make an utterance, but when two or more are foraging around a camp at night they chatter in a most amusing way. The sound is similar to the whine of a puppy punctuated now and then by a guttural questioning grunt. My old woods partner used to say it sounded like a group of squeaky voiced old men gossiping at the country grocery store.

This has been a condemning discourse but despite his shortcomings, Porky is a peculiar chap and his antics will give you many a laugh to make up for the mischief he does.

HEROES OF THE C.C.C.

(Continued from page 304)

his stocking feet. Over the rocky, brush-covered mountainside he ran, wading the icy streams, disdaining the jagged ends of crusted snow and ice. His one thought was the need of his fellow worker for immediate assistance.

He reached camp in remarkable time, then led a first aid party to his wounded buddy. His unselfish and painful dash, according to the medical officers, undoubtedly saved Sadler's life.

Frank S. Zabroski, of West Conshohocken, Pennsylvania, won his citation by saving the lives of the officers of Camp S-54, at Richmond Furnace, Pennsylvania. On December 14, while on fire guard duty, Zabroski discovered fire in the officers' quarters. With rare presence of mind he awakened the officers asleep inside, then rushed to the supply room for fire extinguishers.

"Zabroski undoubtedly saved the lives of all the officers and supply personnel," the citation states, "as the building was quickly and completely destroyed. He was forced to enter the room of Lieutenant Egelman after flames were beginning to break through the wall. The officer barely had time to leave the building."

Out in Idaho three young C.C.C. heroes were cited for meritorious conduct in saving the lives of two girls and a twelve-year-old boy. They were Max Monteith, of Boise, Idaho, Clinton H. Mastin, of Yachats, Oregon, and George F. Mayland, of Camden, New Jersey, all attached to Company 285, stationed at Boise.

The men, on duty, heard the screams of the three as they struggled in the swift waters of the Boise River. Without hesitation they plunged into the water with their clothes on, and bucking the treacherous current with difficulty, reached the trio just as the youth was going down for the second time. They succeeded in bringing the swimmers safely to shore.

Federico Plurad, of Seattle, Washington, attached to Company 1924, at Hoyt, Idaho, also plunged into a swift current to save two lives. They were his own comrades—fellow members of the Corps.

Cited for "extraordinary devotion to duty

and bravery" young Plurad, during the latter part of December, watched his fellow members attempt to cross the St. Joe River in a boat. The river was in flood stage and the boat capsized in midstream. Plurad waited just long enough to see that the struggling men could not reach shore before he plunged into the roaring water. He was driven back. But he immediately tried again, this time with a willow pole. By powerful swimming and perfect timing, he allowed the current to hurl him downstream past the boys, throwing them one end of the willow pole as he shot by. One of the boys caught it and was pulled ashore.

For the third time Plurad plunged into the water, and with the help of the companion he had rescued, barely managed to drag the other ashore. His action was one of the outstanding displays of bravery and devotion to his fellow members recorded by the War Department.

Dock Cone, of Leesburg, Texas, was cited for saving the life of a fellow enrollee injured while working. His companion was attempting to cut a tap root of a pine stump when his ax glanced off the root and nearly severed his left foot. Cone removed the ax, made a tourniquet with his belt to stop the blood spurting from the wound, and immediately administered other first aid treatments which saved the other's life.

Young Irvin Issacs, assigned to Camp 58, near Paw Paw, West Virginia, also was cited for presence of mind and courage in preventing serious injury to a fellow worker. Issacs was riding with Alden de Remer, a fellow worker, in one of the Corps trucks when the machine skidded and overturned, pinning de Remer beneath it. There was a foot of snow on the ground, and it was still snowing. Issacs, who was uninjured, managed to climb from beneath the truck, secure a long timber, and with a large boulder rigged up a lever. By using himself as a counter-balance on the end of the timber, he eased the weight off the body of his unfortunate companion, who was unable to move. They remained thus exposed to the weather until help arrived several hours later.

Thus are written the names of Martinez, Funk, Haines, Zabroski, Monteith, Mastin, Mayland, Plurad, Cone and Issacs in the book of heroes of the Civilian Conservation Corps.

But there are others whose unselfishness, courage, and devotion to duty assign them to the heroes' niche. Space will not permit a detailed recital of their deeds here, but the Corps knows them, and is proud of them.

The Corps knows that Howard Buckley, of Baltic, Connecticut, at the risk of his life, rushed into the heavy surf of Misquamicut, Rhode Island, to save three lives.

It knows that Clarence S. Hendrickson, of Miami, Florida, and Arthur N. Walton, of Jacksonville, Florida, dared death in rescuing a pilot from a fallen airplane. It knows that Charles H. Marshall, of Elkton, Virginia, and George P. Sherburne, of Norfolk, Virginia, by unusual heroism saved two homes during a forest fire.

And it knows the others—S. H. O'Brien, of Cheyenne, Wyoming, W. E. Bright, of Happy, Texas, and Adrian Kolter, of Wichita Falls, Kansas, who rescued a fellow member from drowning. Daniel Engler, Froid, Montana, John C. Hansen, of Glendine, Montana, Mike G. Winchel, of Stipek, Montana, and Victor A. White and Stell Block, of Butte, Montana, who were commended for risking their lives to save two fellow members marooned in a boat; Carl E. Morris, of Morganton, North Carolina, who saved a companion from drowning.

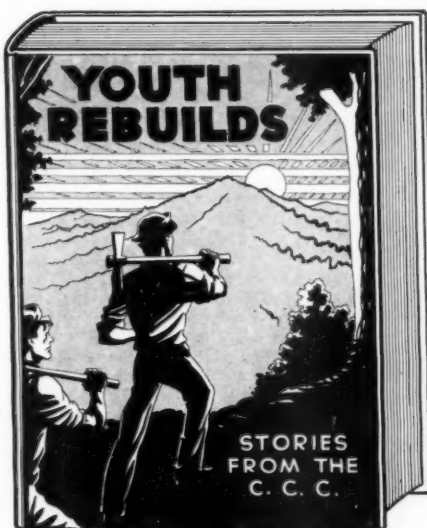
John M. Gray, of Tellico Plains, Tennessee, saved two lives in one day; J. E. Johnson, of St. Augustine, Texas, Frank T. Bell, of Breckenridge, Texas, Marvin J. Goodman, of Roby, Texas, Delbert Ross, of Rush Springs, Oklahoma, William C. Clay, of Chickasha, Oklahoma, Grady Lambert, of Mt. Pleasant, Texas, and James F. Everett, of Rush Springs, Oklahoma, were cited for extricating a fellow member, at the risk of their lives, buried by a cave-in.

Joseph Host, of Point Marion, Pennsylvania, entered a burning building to rescue a comrade; Clarence Wiley, of Grantsville, Maryland, almost lost his life while rescuing a man who had fallen through the ice; W. W. Holloman, of Berkeley, Virginia, was cited for quick application of a tourniquet in an emergency.

The following C.C.C. members gave blood transfusions to save lives: Frank Fitzsimmons, Newark, New Jersey, Marion Keller, Connorsville, Indiana, Vernon Roberts, Evansville, Indiana, and William Eddy, Lowell, Massachusetts. A group of South Carolina boys was cited for heroism in fighting a fire which menaced their camp. They were: W. L. Blanchard, L. B. Crosland, and W. M. Smith, of Columbia, S. A. Huey and T. O. Proctor, of Chester, J. E. Smith, of Greenwood, and M. P. Stuckey and R. D. Kelley, of Bishopville.

Stanley F. Nedza, of Pittsburgh, Pennsylvania, was cited for preventing a collision of a truck loaded with C.C.C. members; Carmon Huffman, Glade Park, Colorado, for prompt action in preventing injury to a fellow member who fell from a cliff; Arthur B. Holland and Luke Sherard, Goldsboro, North Carolina, Thomas P. Branch, Laurinburg, North Carolina, and Woodrow Sanders, West End, North Carolina, risked their lives to protect property while fighting a fire in Walnut Cove, North Carolina.

John F. Meggs and Leon Mansfield, of Fort Worth, Texas, Lane Tomlin, of Temple, Texas, George L. Noal, of San Antonio, Texas, and Sabas V. Gonzales of Corpus Christi, Texas, were cited for courageous action in saving their camp from destruction by fire; Frank Rogers, of Lewiston, Idaho, and George Locke, of Northfork, Idaho, for rescuing a



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man marooned by a flood; Francis Chandler, of George West, Texas, for meritorious conduct in releasing a bogged truck carrying C.C.C. members from the cold waters of a creek, and Raymond H. Jones, of Whitewater, Missouri, for rescuing a fellow member from a stream.

Edward Marakowitz, of Passaic, New Jersey, was cited for prompt organization of a company to handle a fire call; Richard Buckley, of Decatur, Alabama, for presence of mind in extinguishing fires in stoves when the barracks were blown over; L. B. Barry,

Columbia South Carolina, and Charles B. Rice, Shepherdsville, Kentucky, for extinguishing a fire in camp.

For saving government property from fire, the following men were cited: Angelo Puerto, Everett Macerola and Joseph Attanasio, of Schenectady, New York; Lewis Steier, Alexandria Bay, New York; William Rosson, Goin, Tennessee; Lon Needham, New Tazewell, Tennessee; Harry Rausch, New York City; William Dannheimer, Orange, New Jersey, and Thomas Kelly and Leonard Screoney, of Brooklyn, New York.

SUMMER ACTIVITIES OF NATURE

(Continued from page 315)

emitted by tiny bacteria scattered over the decaying wood. These bacteria produce light in the same way that fireflies do: namely, by burning fuel within their bodies.

Bacteria produce light in other places besides in swamps, where it is called "foxfire" or "punk-wood." Perhaps you have opened the refrigerator in the dark and noticed a glow on the surface of meat inside. This is due to bacteria, and millions of them are necessary in order to produce a faint glow. Dead fish washed onto the shore often appear lighted at night, and many living animals carry quantities of these bacteria to produce light for them. Certain fish of the Banda Islands have a large lighted spot under each eye. This spot is filled with these bacteria.

William Beebe, who has explored the ocean depths quite thoroughly, says that the bottom of the ocean is alive with myriads of self-lighted animals. Most of these carry patches of bacteria to provide their light. Some have rows of lights all along the sides of their bodies, from head to tail.

Some of these deep-sea animals, according to Beebe, have blue lights; some red ones; some yellow; some green; and some pink or orange. The Lantern-fish is ablaze with lights. Squids carry lighted "port-holes" in various colors. Jellyfish stomachs glow with the light of luminous animals which they have swallowed. The Silver Hatchetfish glides along like a streak of gleaming silver, brightly illuminated by many small groups of colored lights. And there is a long, slender eel-like fish which has over 300 lights scattered over its body.

Certain of these light-producing bacteria have been carefully studied by E. Newton Harvey of Princeton University, who has grown them in glass bottles and measured their light. These are undoubtedly the "smallest lamps in the world."

Nearly every one delights in butterflies and moths. Many make collections of them, and proudly exhibit them to all their friends. Every child has pursued these beguiling blossoms of the air, and has watched them fluttering from flower to flower. 'Mid the songful birds they wander, songless; but among tethered flowers, they drift like flying blossoms. Yet, with all of their glory in this mature form, we reflect:

"And what's a butterfly, At best
He's but a caterpillar, drest."

There are many ways in which butterflies and moths are similar. They have all been caterpillars before being what they now are. They did their growing during their caterpillar days, feeding upon their favorite plants or other substances. Now they have only one purpose to fulfill: they must find a mate, then the females must lay their eggs for the next generation. When this is accomplished, life comes to an end quickly. They do not usually remain with us long, but complete their task, and then, after a short holiday among the garden blossoms, they die.

Besides being similar in the ways mentioned, and in the additional fact of all having four wings, moths and butterflies are very different in other respects.

First, butterflies have little knobs at the ends of their antennae, or feelers, while moths have antennae that are either straight or feathered. There are a few exceptions among tropical species, but the rule applies well to all species known in North America. The antennae of butterflies look like little clubs, with the knob at the tip end. Moths sometimes have many-branched antennae, looking wide and intricate, while others may have only delicate thread-like ones.

Second, butterflies usually have slender and graceful bodies, while moths have fat ones.

Third, butterflies, when at rest, usually hold their wings together straight above their bodies, while moths spread their wings out flat or hold them against the body. A butterfly resting on a flower seems to derive protection from his leaf-like wings held above his body.

Fourth, butterflies are seen most in the daylight, while moths prefer the night-time or twilight, like the owls and bats.

Fifth, butterflies have a graceful fluttering flight which makes them resemble falling leaves, while moths ordinarily have a straight-line flight and do not waver much. Did you ever see a bird trying to catch a butterfly? The bird with its straight flight finds it exceedingly difficult to overtake the fluttering, zigzagging butterfly.

Sixth, butterflies feed on nectar and other sweet material, while most moths do not eat at all. Butterflies and those few moths which do take food are all provided with long, coiled tongues which can be unrolled and dipped into the nectar at the bottom of flowers.

Seventh, butterfly larvae usually do not spin silken cocoons like those of the moths, but produce a hard, leathery case around the pupa or chrysalid.

Those butterflies and moths which feed upon nectar from flowers are very valuable for their assistance in the pollination of the flowers. As you see them stopping here and there to run their long, coiled tongues into blossoms, you can often see them brushing off the pollen onto their bodies, to be carried to the next flower.

Both of these insects have very poor sight, and can see only a very short distance. They are able to find their mates at distances of a mile or two by their remarkable sense of smell. It is in this way that they are attracted to the right blossoms, also.

Butterflies and moths employ the short time assigned to them in a variety of ways. They never have the responsibility of rearing their families, as do many other creatures. They lay their eggs and this is the end of their duty to their offspring. The only precaution they take is to lay these eggs on the kind of food, or near the kind of food, on which the caterpillars will want to feed when they hatch from the eggs. The rest of their short life is spent in quest of sweet foods among the flowers, or in pursuit of their mates.

SAPLING SAM RETURNS



She: "The directions say to rub the surface down with steel wool. What on earth is steel wool?"

He: "I'm not sure, but I think it's made from the fleece of hydraulic rams."

—Annapolis Log.

Nervous Suitor: "Sir, er—that is, I would like to—er—that is, I mean I have been going with your daughter for five years—"

Father: "Well, what do you want, a pension?"—Punch Bowl.

Little Girl: "Mother, you know that valuable old vase you said had been handed down from generation to generation?"

Mother: "Yes, dear."

Little Girl: "Well, this generation has dropped it."—Alabama Forest News.

Ho, Hum

After tasting our first jigger of this new blended stuff, we have decided to use the rest of it for dipping fence posts. Oughta make 'em last for ever and ever.—The Forest Log.

Preparedness

Illinois Farmer: "If things get too bad, we can eat our forest preserves."

R. O. Staff: "You have nothing on us. We can eat our traffic jam."

"Dear Mr. Forester:

Please advise if the market for wooden nutmegs is such as to offer inducements for commercial production. What treatment of the nuts do you advise to get a high per cent of germination? Is it true that General Grant is the biggest tree in the United States or is there a nutmeg grater? If I cross a bull pine and a cow oak, will the progeny be correctly designated as a bullok? Is there danger of causing serious soil erosion if the land is planted to weeping willows?

D. E. TWILER,
Clarendon, Va."

Wonder What You'd Plant to Get Elephants?

The Missouri Game and Fish Department plans to plant 12,000 quail in "shot-out" areas and produce 10,000 wild turkeys annually.

—Philadelphia Public Ledger.

Teacher: "If a number of cattle is called a herd and a number of sheep a flock, what would a number of camels be called?"

Little Johnnie: "A carton."

—Atlantic Sportsman.

Now scientists prove that fruits radiate electricity. We've often felt the current of juice from a grapefruit.

—Vallejo (Cal.) Chronicle.

Let us rise to remark that the greatest of all horticultural feats is not yet accomplished—the grafting of Weed chains on banana skins.—Washington Dirge.

MAKING TREE PORTRAITS

(Continued from page 310)

ground, a ravine, a fence or something similar will give the proper balance.

Bright days are good days for tree pictures, especially the time of day when shadows are long and add their interesting shapes to the portrait. But in treating the subject of tall trees such as the poplar, a bright day with large fleecy cumulus clouds in the sky is better still—their rounded lines supply a pleasant contrast to the more or less straight lines which predominate.

The oak, being of a more robust form, requires a different treatment. Less sky should be included in its portrait—the horizon should come nearer to dividing the picture into two equal parts. A winding road leading into the background, perhaps a distant house or barn, are good additions. But always have the tree itself off center.

The light that comes in those hours of the day when the sun's rays slant is the best light for tree pictures and if the exposure is made with the rays coming in from the side, so much the better. Side lighting shows the natural depressions in meadows and lawns which when illuminated by light rays falling vertically upon them look flat and unnatural. Side lighting also makes tree trunks and branches plump and round, not flat. To the whole picture it adds depth—as though you were looking upon something real—not just an image built of silver grains deposited on paper. Except when the picture is to be taken in a fairly dense forest, exposure time can usually be snapshot time. A small stop or diaphragm opening will result in very sharply focused detail. In all cases—tree pictures or any other kind of pictures—if a longer exposure must be given make that exposure longer by decreasing the shutter speed—not by increasing the size of the stop. In forests an exposure of a second or more is often needed. To determine the exact time required one must rely on experience or a good exposure meter.

A little study of the composition and the qualities to be emphasized is the key to success in taking tree portraits—and as your collection of tree portraits grows you will begin to appreciate what a wealth of picture prospects this field of photography offers.

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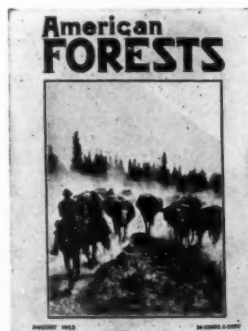
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INDIAN TRAIL TREES

(Continued from page 297)

These secondary trunks branched and bore leaves in the normal manner. They may have originated from former branches or may have issued forth as entirely new stems. In most cases the extremities of the original bent-over trunks later decayed away (see figure 3). Sometimes, however, the trunk tip would take root at its point of contact with the ground, and the tree would continue its development with two sets of roots (see figure 4). Except that they have increased in diameter, the bent portions of these trees are still pointing in the same manner and directions as when first bent more than a hundred years ago. Occasionally it was necessary for an Indian to place a trail sign at a place where no small tree was growing which he could conveniently bend. In such a case the bending of the lowermost branch of a large tree was occasionally resorted to (see figure 5.) The lowermost part of this branch has decayed with the passing of the years, but tree surgery has saved the greater portion of it.

Most of the detailed study of Indian trail trees has been carried on in the Chicago area where oak trees constitute the dominant forest growth. Hence most of the trail trees there are varieties of oak, although many other kinds were also used, principally elms, hickories, and hard maples (see figure 6). The

question has often been asked as to whether the Indians used selection in their choice of trees—using only one kind throughout a single trail. While this may have been so in limited cases, it could not always hold true. Trees of the same species ordinarily grow in groves, and a trail extending for a long distance would pass through areas containing different types of trees. In such a case the Indian would actually be prevented from exercising selection. He would necessarily have to use whatever kinds of trees happened to be growing along the route at the time.

Difficulty in differentiating between Indian trail trees and ordinary crooked or deformed trees often confronts persons untrained in the observation of them. In viewing such trees, one must be able to ascertain whether their shapes are the results of accidental, intentional, or natural causes. Wind, sleet, lightning, heavy snows, or depredations by animals may cause accidental deformities in a tree. A careful examination of the tree will disclose such a fact inasmuch as serious injuries always leave their scars. Another common cause of accidental deformities is the falling of a larger tree upon a smaller and pinning it down. When such is the case, the angle of bend is relatively long and gentle, quite unlike the abrupt angle used by the Indians.

Natural causes are frequently unaccountable and result in deviating directions taken by the tree trunk while it is growing. Some kinds of trees have greater tendencies to develop crooked stems than others, and such deviations present a different appearance than the methodical bend used by the Indians.

Indian trail trees still exist in many states throughout the Mississippi Valley and eastward. They seem to be most numerous in Illinois, Wisconsin, Michigan, Indiana, Ohio, Kentucky and Missouri. Nowhere, however, are they known to be so numerous as in the area immediately north of Chicago. This is probably due to the fact that early speculation in real estate there preserved much of the original timber. Also many landowners have taken pride in preserving such trees existing on their property except where it was necessary to remove them in order to make way for improvements. About seventy-five of these old trail trees are still standing within the suburban area of Chicago, many of which may be seen in the lawns and gardens of beautiful North Shore residences.

It is unfortunate that these old Indian landmarks are fast disappearing. The ages of many of them antedate that of our government. Only a short time longer, and the last of them will have disappeared forever from our midst, as did the Indians who bent them.

FEDERAL ACQUISITION IN THE NEW DEAL FOR FORESTRY

(Continued from page 302)

hey-day of exploiting the public domain, when private ownership assumed the burden of raw material that broke its back and set in train the difficulties of our present situation. Let this mistake be frankly recognized and corrected, in the obvious way. The government already owns about forty-eight per cent of the timber in the western states. Let it acquire another 250 billion feet, giving it roughly two-thirds of the total supply. Let it use its aggregate holdings, under the well-established sustained yield management of the National Forests, to stabilize the rate of cutting and the value of timber; to keep forests as a commodity, or as a natural resource—whichever you please—in a condition somewhat approaching the long-established values of Europe which are the basis of long-established methods of sustained production.

My third suggestion is that, in the extension of the National Forests, special emphasis be given to making the national holdings the nuclei for units of sustained yield production of timber in which private holdings may participate. Cooperative plans for supplementing the production on private lands with that on adjacent or intermingled government lands, both together making up a natural economic unit, have been undertaken by the Forest Service in a few instances. There are many cases in the western states where an owner who can not work out a practicable operation for sustained production on his own holdings, may be able to do so if national timber is made available to round out his operation, under contractual obligations not greatly different from those governing the usual sale of National Forest stumpage. It may not be practicable to put complete sustained yield in effect under such situations. The possibilities may be limited to a constructive form of selective logging or the

carrying of lands for a second cut. Each situation must be dealt with on its own conditions and merits.

The working set-up I have in mind is simply that where national timber holdings are located, or can be acquired, so as to influence the management of private properties along some sound line of sustained production, such possibilities should be given great weight in the acquisition policies of the government. This is assuming, of course, that the desirable and practicable measures for longer operating life of private timber or better conservation of forest growing resources can be carried out consistently with public policy and legal limitations. It should be possible to establish enough such cooperative units at different points in and around the National Forests to materially help in heading commercial forestry toward sustained yield.

It goes without saying that the relief of distressed owners from burdensome or losing investments has no place in forest acquisition. The government should acquire its additional timber lands on only a sound appraisal of current worth. The government should seek to stabilize timber values on reasonable levels that are sustained by present economic factors; and the industry must adjust its value ratings accordingly. We are dealing with a great natural resource and large industrial groups, seeking a sound basis for the continuity of both. The rescue of any individual from loss has no place in this program. Nor, by the same token, should the federal government seek to acquire only the cheapest land, or to make the best showing in acres for dollars spent. One of the most important steps in federal acquisition is a careful definition of its objectives in relation to the forest situation of the country and the individual region; and the careful selection of lands for purchase in accordance with those objectives.

In this connection, I venture another word of caution. When we combine the needs for flood and erosion control with those for forestry, when we survey the whole range of land-use problems which indicate the need for more government ownership for different purposes, it is obvious that the national government has a staggering job of land acquisition on its hands. It would, therefore, seem to be common sense to leave private ownership of forest land undisturbed where it has demonstrated reasonable ability to carry forest lands over extended periods, to cut them with a practical understanding of timber growth and to maintain their productiveness; or where timber values or particular industrial opportunities—as in the case of the wood-pulp industry of the Pacific Northwest—indicate that continuous forest production under private ownership is assured.

I do not want to leave the impression that the lumber industry of the Pacific Northwest can be expected only to leave its cut-over lands in good growing condition, passing the burden of future yield from that point on to the federal government. There is much that the industry can do of itself, as in developing the full possibilities of selective logging to solve the twin problems of liquidating investments and sustaining forest production. The possibilities of short-rotation crops created by the pulp industry in this region is another promising lead. The industry should push these and other constructive opportunities for the future of its lands.

But it is my sincere conviction that unless the federal government takes bold and decisive action to stabilize forest values and forest ownership in the West, such gains as the industry can make in sustained forest production will be meager and scattered, and will fall far short of the opportunity held out to us under the Lumber Code.

TOP COUNTRY

(Continued from page 295)

made the pictures from the saddle which I wanted, we sat motionless for a time just trying to comprehend the bigness and the vastness of this top country. In much of the high country of Colorado and in other parts of Wyoming there are prospectors' cabins crumbling to decay on some of the topmost ridges. But here it is an untouched land—a land seldom thought of—and more rarely visited.

The sun was already on its downward slope so we knew we must not stay longer. We were, though, reluctant to take the back trail after having conquered these ridges. On our contour map the glacier was only about two miles from our camp but it required twelve hours of almost superhuman effort for us to make the climb up there and back. It was after seven o'clock when we got back into camp and found Mrs. Marshall more than glad to have us there safe and sound. In short order the coffee was boiling, steak was frying and the biscuits were browning in the oven.

Early the next morning, after our climb to Minor Glacier, we broke camp and turned our faces from the top country towards Green River Pass Trail, which led down Trail Creek. For a time the trail was exceedingly steep—just about perpendicular and uncertain underfoot. There was very little timber until we neared Three Forks Park and then we ran into mountainsides heavily wooded with innumerable lodge pole pines many of which had fallen across the trail. Occasionally we were forced to stop to chop out these deadfalls so that we could go on. Thick patches of ripe raspberries were growing along Trail

Creek and we gorged ourselves on this luscious treat. All that afternoon, as on similar days, dozens of Rocky Mountain jays flitted through the timber shrilling their raucous cries.

Near the lower end of the canon we came to a drift fence, which had been built to keep the cattle back in the mountains and to prevent them from invading Three Forks Park, which is now a primitive area set aside as a feeding ground for the wild animals of that region. Three Forks Park is so named because there Trail Creek, Wells Creek and Tourist Creek merge to form the main stream of the Green River. Beyond the drift fence we followed a new trail that skirted Three Forks Park to Beaver Meadows where we made camp in sight of Granite Peak. Our day's journey totaled about nine miles in which we had dropped something more than 2500 feet since leaving Glacier Camp.

The following morning we forded Green River and followed this historic stream on its sinuous journey northward. Although its water is milky from glacial deposit, it is perfectly clear when dipped up into a bucket. Cooper and Mac fished the Green while I browsed about with my camera. Fishing with spoons on the riffles, the two caught some marvellous trout, mostly cutthroats of spectacular coloring. We continued on our way around Upper Green River Lake and then crossed between the two lakes. Old Square Top, rising 11,679 feet—considerably higher than El Capitan in California—made a most picturesque background to our crossing. It is not far beyond these two lakes that Green River makes its big bend and swings to the

southwest passing by the ranch postoffice of Kendall, within five miles of Cooper's and Rickert's sawmill in Little Boulder Basin. Keeping to its southwesterly course the Green, in due time, joins the Colorado River in its race towards the Pacific Ocean.

Leaving the Green behind, we headed west into the timber up Porcupine Creek, one of its tributaries, and made camp about sundown in Porcupine Meadows. Moose and elk were to be seen in every direction around us. Going up Porcupine Creek the next morning we were amazed at the tremendous glacial rocks of grey granite, worn smooth by centuries of erosion. These rocks stood out and dotted the meadows like building blocks of a giant. We did not find a cabin at the spot on our map marked "McShirley's Cabin," but there was a big, dead tree there with a black arrow pointing the direction of the trail. This marker showed that the trail went straight on up the left-hand fork of the Porcupine. In attempting to follow in this direction we could locate no landmarks and were just about lost for two hours. Cooper could not figure out why everything here was so different from the description which Doc Rickert had given him.

In order to reach the head of the canon it was necessary to go along a sandy, grassy ledge which skirted a sharp drop into a canon 400 to 500 feet deep. I had crossed a deep gulch to take some pictures of the outfit while resting and was just coming back when I saw Cooper start along the ledge and up the incline with his bay saddle horse and the big grey pack horse. The grey was too tall a horse for good packing and when he started

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at an angle of forty-two to forty-five degrees, he jumped the trail. His pack immediately overbalanced him and the animal went rolling and whirling through the loose soil. I froze in my tracks and had visions of the grey and Cooper's bay, to which the grey was tied, plunging into space down that 500 foot drop.

The saddle horse, however, braced himself in the soft earth and jumped stiff legged as the grey whirled downward. The rain which we had had the night before proved a life-saver as it made the earth soft enough for the bay to get a good foothold. With two or three lunges he checked the fall—just in the nick of time—as only about five feet remained between the grey and the edge of the canon. Like an iron statue the saddle horse stood with hoofs firmly planted in the sand, snubbed up to the grey.

Cooper scrambled down and unfastened the pair. The saddle horse started to nibble the grass at once as if nothing had happened, but the grey stood trembling all over. Cooper skillfully took off the 125-pound pack and transferred to the grey two light panniers with only about sixty pounds in weight. It was no light feat to tie that pack with a basket hitch while the horse stood at such an angle on the mountainside.

Calmly Cooper proceeded to lead the grey up past the place where he had slipped and I began to breathe more easily. Suddenly like a flash the grey, for the second time, lost his footing and started a sickening slide down the mountain. My hair stood on end. Gravel and small rocks crashed over the cliff. It seemed as if nothing short of a miracle could save the grey and then, unbelievably, he regained his foothold and saved himself from certain destruction. Again he had to be unpacked, but this time Cooper led him with only his pack saddle on his back, up along that treacherous knife ridge.

At last with the entire outfit safely on the top of the knoll we drew in deep breaths of relief and stood in silence looking back to marvel that we had all gotten up alive. Someone kicked loose a stone no larger than an egg and it careened downwards. In a few seconds it seemed as if the whole mountain was moving as the stone set in motion hundreds of other stones which went whirling and tumbling with unbelievable velocity. It was plain that a great erosion had evidently taken place at the head of Porcupine Canon.

This trail, which we were attempting to follow, had been put in twelve years before by Doc Rickert and when, after our return, we described it to him he was amazed and almost at a loss for an explanation as to its present condition. His original trail had simply zig-zagged back and forth at easy angles over a grassy slope. He was sure that something terrific must have happened since the trail was constructed. It was his guess that a cloudburst of gigantic proportions must have torn the very heart out of the canon and made of it one of the most treacherous stretches for traveling that any of us had ever experienced.

That night we pitched our teepees on the South Fork of Gypsum Creek. As we were breaking camp the next morning the weather started to fog up. We were now getting into home territory and the horses took the down trail with eagerness. Rapidly we approached Little Boulder Basin. I stopped for a few seconds to look back and then as if shutting a door behind me, turned on down the trail away from the great blanket of snow which was covering the peaks for a stretch of seventy-five miles and which would shut the top country away from the rest of the world in another long season of solitude.

WHO'S WHO

Among the Authors in This Issue

JOSEPH E. STIMSON (*Top Country*) is a scenic artist of Cheyenne, Wyoming, whose colored photographs of the Grand Tetons and Yellowstone Park are known throughout America. The trip described in his story was taken on his own initiative for the sake of obtaining new and unusual views.



Raymond A. Wohlrahe

RAYMOND A. WOHLRAHE (*Tree Portraits*) is a graduate of the University of Washington and an instructor in biological science in a Seattle high school. Travel and photography being his hobbies, he has visited many parts of the world, with his camera as a constant companion.

MARY CARPENTER KELLEY (*The Village Blacksmith Turns Botanist*), a native of the White Mountain region of New Hampshire and a descendant of one of the old pioneering families, is a newspaper woman of Alfred, Maine. She is keenly interested in the early history of New England and in botany, particularly trees, orchids, and ferns.

K. D. FLOCK (*Porcupine—Friend or Foe?*) is forest ranger at the Musselshell Ranger Station, Martinsdale, Montana. In his own words Mr. Flock is one of those happy persons to whom vocation and avocation are one. Wild life in general, public relations and attitudes toward it in particular, in his field of greatest interest.

B. W. JONES (*The Valley of Lost Hope*) is Superintendent of E. C. W. Camp No. P-26 E, located at Ashland, Mississippi. He was born in "The Mill Quarters" of Moselle, Mississippi, and was graduated from the State College in 1922.

WILLIAM B. GREELEY (*Federal Acquisition in the New Deal for Forestry*) is Manager of the West Coast Lumbermen's Association, located at Seattle, Washington. He was formerly Chief Forester of the United States.



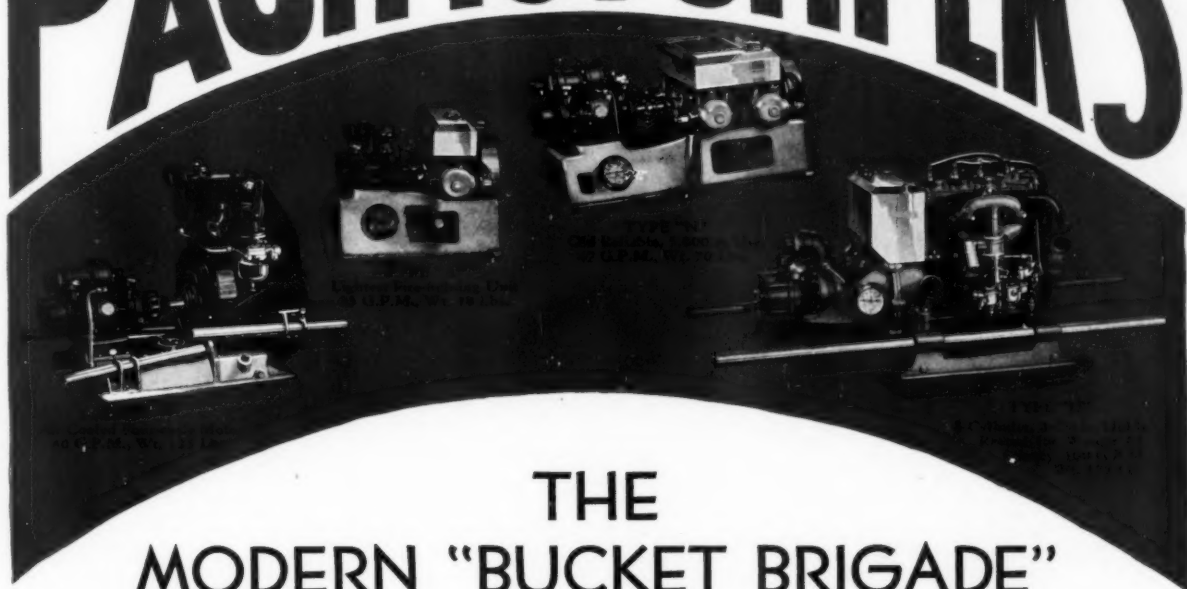
Raymond E. Janssen

RAYMOND E. JANSSEN (*Indian Trail Trees*) is a member of the scientific staff of the new Museum of Science and Industry at Chicago, where he is a designer and builder of natural history exhibits.

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ERLE KAUFFMAN (*Heroes of the C.C.C.*) is Assistant Editor of AMERICAN FORESTS, and G. H. COLLINGWOOD (*Forestry in Congress*) is Forester for The American Forestry Association.

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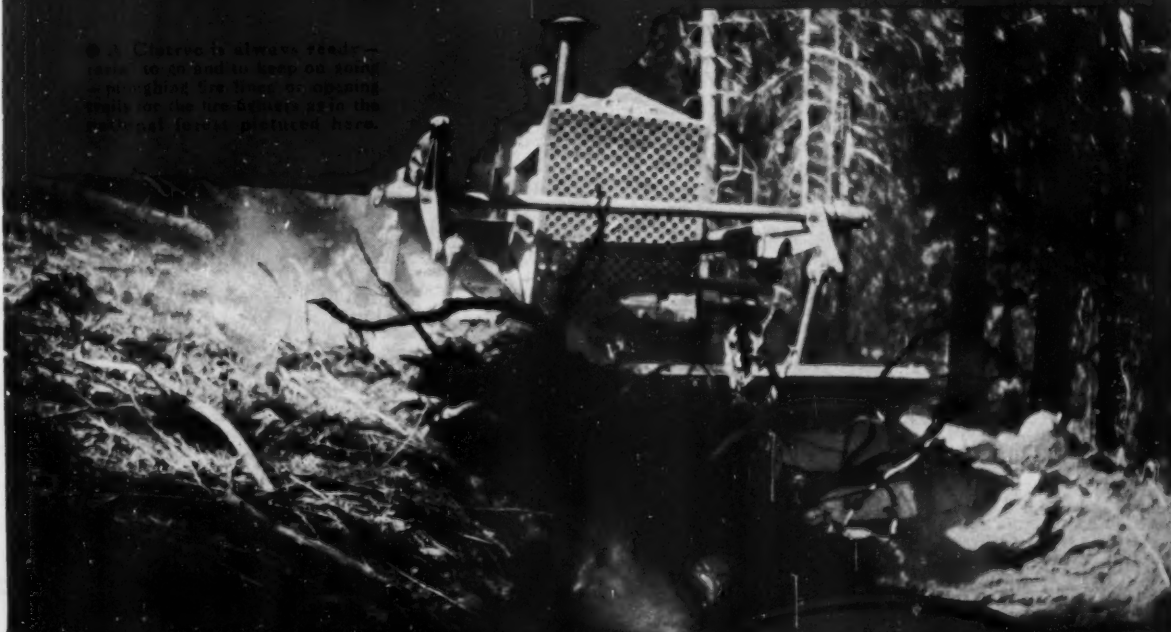
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